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September 2000

# **Engineering Design File**

# **ROD Amendment Cost Estimate Support Data Recapitulation**

Prepared for: U.S. Department of Energy Idaho Operations Office Idaho Falls, Idaho



431.02 08/12/98 Rev. 06

#### **ENGINEERING DESIGN FILE**

Functional File No. INEEL/EXT-2000-

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1. Project File No.	6223-AD	_2. Project/Task _	WAG 1/ OU 1	-07B/ Rod Amendment	
3. Subtask					
4. Title: ROD Amendr	ment Cost Estimate	Support Data Rec	apitulation		
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6. Distribution (comple	ary package only):				
7. Review (R) and App may be added as nec		es: (Minimum revie	ws and appro	vals are listed. Additional review	vs/approvals
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# **CONTENTS**

ACR	ONYM	IS		٧
I.	SCO	PE OF W	ORK:	1
	I.A		tive 1—Pump and Treat of the Hot Spot, the Medial Zone, Distal Zone.	2
	I.B	Alterna of the I	tive 2—In Situ Bioremediation of Hot Spot, Pump and Treat Medial Zone, and Monitored Natural Attenuation of the Distal Zone	3
II.	BAS	IS OF TH	HE ESTIMATE:	4
III.	ASSU	JMPTIC	NS:	5
IV.	CON	TINGEN	NCY GUIDELINE IMPLEMENTATION:	5
v.	ОТН	ER CON	MENTS/CONCERNS SPECIFIC TO THE ESTIMATE:	5
		V.A.2	Scope	6
	V.B	WBS1	2 Treatability Studies	•
			Scope	
App	endix A	A—Alter olved Ph	native 1: New Groundwater Treatment Facility, New Pump and Treat Facility, and ase Treatment Unit	
App		3—Alter Iral Atter	native 2: In Situ Bioremediation, New Pump and Treat Facility, and Monitored nuation.	
App	endix (	C—Alter	native 1 & 2—Life Cycle Analysis	
App	endix l	D—Altei	rnative 1 & 2—Cost Summary Analysis	

iv

#### **ACRONYMS**

ASTU Air Stripper Treatment Unit

D&D decontamination and dismantlement

DPTU Dissolved Phase Treatment Unit

FDR Field Demonstration Report

FY fiscal year

GWTF Groundwater Treatment Facility

ISB In Situ Bioremediation

ISCO In Situ Chemical Oxidation

MNA monitored natural attenuation

NGWTF New Groundwater Treatment Facility

NPTF New Pump and Treat Facility

NPV net present value

OU operable unit

P&T pump & treat

RAWP Remedial Action Work Plan

RD/RA Remedial Design/Remedial Action

ROD Record of Decision

SOW Statement of Work

TAN Test Area North

WP Work Package

# **COST ESTIMATE SUPPORT DATA RECAPITULATION**

Project Title:

OU 1-07B ROD Amendment Alternatives

Estimator:

J. D. Folker

Date:

August 21, 2000

Estimate Type: File:

Planning 6223-AD

Approved By:

#### I. SCOPE OF WORK:

This cost estimate covers the following two remediation alternatives for the Test Area North (TAN) Final Groundwater Remediation, Operable Unit (OU) 1-07B:

- Alternative 1—Pump and Treat (P&T) of the Hot Spot, the Medial Zone, and the Distal Zone.
- Alternative 2—In Situ Bioremediation (ISB) of Hot Spot, P&T of the Medial Zone, and Monitored Natural Attenuation (MNA) of the Distal Zone.

These two alternatives are the result of the completion of treatability studies conducted in accordance with the original 1995 1-07B Record of Decision (ROD). The OU 1-07B Field Demonstration Report (March 2000) identifies ISB and MNA as being more effective than the P&T remedy identified in the 1995 ROD for two areas of the contaminant plume: the hot spot and the distal zone. Alternative 1 represents the original 1995 ROD remedy, while Alternative 2 represents modification to the original remedy to replace P&T in the hot spot and distal zones, with ISB and MNA respectively.

This planning estimate provides an estimate of the total life cycle cost for each alternative. The time frame represented is from preparation of the original Remedial Design/Remedial Action (RD/RA) Statement of Work (SOW) in 1995 through 2030. The estimate for both Alternative 1 and Alternative 2 utilizes actual costs for the time frame from 1995 through fiscal year (FY) 1999. The estimate for each alternative then uses estimated costs for FY 2000 through FY 2030. The estimated time frame costs are estimated in current year (FY 2000) dollars with total life cycle cost for each alternative being identified as the actual cost through FY 1999 plus the estimated cost from FY 2000 through FY 2030.

In addition, net present value (NPV) costs are calculated for each alternative. This NPV cost includes actual costs through FY 1999 plus estimated costs from FY 2000 through FY 2030. The NPV calculation is applied only to the estimated cost time period. The NPV is calculated by using an overall discount rate of 7% per year.

A summary of the scope for each alternative is described below: the estimated time frame for implementing the scope for each alternative is provided in Appendix A and B. The Summary Schedule for Alternative 1 and 2 is shown in Appendix C and D.

#### **COST ESTIMATE SUPPORT DATA RECAPITULATION**

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# I.A Alternative 1—Pump and Treat of the Hot Spot, the Medial Zone, and the Distal Zone.

This alternative represents the original P&T remedy as identified in the 1995 ROD and as modified in the 1997 Explanation of Significant Differences. This alternative is based on the assumption that treatability studies do not identify any alternate technology to be more effective than P&T. The summary level scope for FY 2000 through FY 2030 for this alternative is:

- Project Management
- Treatability Studies—Field Demonstration Report (FDR) #1, In Situ Chemical Oxidation (ISCO) Field Evaluation, MNA Field Evaluation, FDR #2.
- New Groundwater Treatment Facility (NGWTF)—Design and Construction of a NGWTF for the hot spot.
- New Pump and Treat Facility (NPTF)—Construction of a NPTF for the medial zone.
- Dissolved Phase Treatment Units (DPTUs)—Design and construction of the two DPTUs for the distal zone.
- Performance Monitoring Wells—Design and construction of performance monitoring wells for the hot spot, medial zone, and distal zones.
- Remedial Action Work Plan (RAWP)—Revision to the Phase C RAWP and supporting documents to address the NGWTF and DPTUs.
- Phase B Hot Spot Containment—Continued operation of the existing hot spot Groundwater Treatment Facility (GWTF) or Air Stripper Treatment Unit (ASTU) until the NGWTF is operational.
- Phase C Operations—Operation and maintenance of the NGWTF, NPTF, and DPTUs for hot spot containment and dissolved phase treatment.
- Surveillance and Monitoring—Groundwater monitoring and remedy performance monitoring including 5 year reviews.
- Operations and Maintenance Report
- Decontamination and Dismantlement (D&D)—D&D of the GWTF, ASTU, NGWTF, NPTF, and DPTUs. Abandonment of monitoring and remediation wells.

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Project Title: OU

OU 1-07B ROD Amendment Alternatives

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Planning 6223-AD

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# I.B Alternative 2—In Situ Bioremediation of Hot Spot, Pump and Treat of the Medial Zone, and Monitored Natural Attenuation of the Distal Zone.

This alternative represents the new proposed remedy as identified in the 1-07B FDR (March 2000). This alternative is based on the conclusion in the Functional Design Requirement that ISB and MNA are more effective than P&T in the hot spot and distal zones, respectively. The summary level scope for FY 2000 through FY 2030 for this alternative is:

- Project Management
- Treatability Studies—FDR #1, ISB treatment system pre-design operations.
- Proposed Plan and ROD Amendment
- RD/RA SOW —New or revised RD/RA SOW
- ISB Treatment System—Design and construction modifications for an ISB treatment system for the hot spot.
- NPTF—Construction of a NPTF for the medial zone.
- Performance Monitoring Wells—Design and construction of performance monitoring wells for the hot spot, medial zone, and distal zones.
- RAWP—Revision to the Phase C RAWP and supporting documents to address the ISB Treatment System and MNA.
- Phase B Hot Spot Containment—Continued operation of the existing ISB treatment system and ASTU until the modified ISB treatment system is operational.
- Phase C Operations—Operation and maintenance of the ISB Treatment System and NPTF for hot spot and medial zone treatment.
- Surveillance and Monitoring—Groundwater monitoring and remedy performance monitoring, including 5 year reviews.
- Operations and Maintenance Report
- D&D—D&D of the GWTF, ASTU, ISB Treatment System and NPTF. Abandonment of monitoring and remediation wells.

#### **COST ESTIMATE SUPPORT DATA RECAPITULATION**

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OU 1-07B ROD Amendment Alternatives

Estimator: Date:

J. D. Folker August 21, 2000

Estimate Type:

Planning

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6223-AD

Approved By:

#### II. BASIS OF THE ESTIMATE:

This estimate includes drawings, design reports, engineers notes and/or other documentation upon which the estimate originated and are shown as follows:

- a. Alternative 1 & 2, Summary Work Breakdown Structure with actual costs through 1999.
- b. ROD Alternative Cost Estimate Input, Phase B Treatability Studies.
- c. ROD Amendment, Ground Water Monitoring Cost Estimate.
- d. ROD Alternatives, Treatability Study Estimate Summary.
- e. Operating Cost Estimate at New GWTF by Joint Control Group dated 08-26-99 & 08-25-99.
- f. Construction Costs at New GWTF by Joint Control Group dated 08-26-99.
- g. OU 1-07B, TAN Final Ground Water Remediation. Work Package (WP)-16-DPTU. Planning Estimate File #6223-S.
- h. OU 1-07B, TAN Final Groundwater Remediation WP 10, Ground Water Monitoring FY 2000. WP Detail Estimate File # WP 10.
- i. WP-11, ISCO Summary Costs FY 00, 01.
- j. WP-11, Natural Attenuation Summary, FY 00, 01.
- k. WP-11, Functional Design Requirements Summary FY 00, 01.
- 1. WP-9, NPTF/ISB. FY 03 to FY 30 Facility Operations Costs.
- m. WP-9, NPTF Operations FY 01 to FY 02 Facility Operations.
- n. WP-5, NGWTF, NPTF & DPTU's FY-00 to FY-30.
- o. Preliminary NGWTF 10% Remedial Design, TAN, OU 1-07B (DRAFT).
- p. Preliminary ISB 10% Remedial Design, TAN, OU 1-07B (DRAFT).
- q. WP-7 Hot Spot Containment, ASTU FY 01, 02, 03 Facility Operations
- r. D&D Estimate Models for CFA-603

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#### III. ASSUMPTIONS:

Assumptions are condition statements accepted or supposed to be true without proof of demonstration. An assumption has a direct impact on total estimated cost.

- Alternative 1: Construction of 2 DPTUs required for P&T for the distal zone.
- Alternative 1 & 2: Monitoring complete in 2030.

### IV. CONTINGENCY GUIDELINE IMPLEMENTATION:

The percentage used for contingency as determined by the contingency allowance guidelines can be altered to reflect the type of construction and conditions that may impact the total estimated cost. A contingency of + 50%/- 30% is applicable to estimated costs per DOE cost estimating guidelines. The contingency has not been included with total project costs.

## V. OTHER COMMENTS/CONCERNS SPECIFIC TO THE ESTIMATE:

#### V.A.1 Scope

This task covers project management activities for implementing the TAN Groundwater Remediation Project. Scope under this task includes project planning, baseline development, project execution, project performance monitoring and reporting, and baseline management. Project planning includes scope development, schedule development, and activities duration and cost estimating. Currently, annual project planning is at a detailed work package level. It will remain at this level for the next two years of the project scope with a planning level to be initiated thereafter. Project execution includes detailed planning for task implementation and work authorization and control. Performance monitoring includes tracking schedule and cost status, performance measurement and corrective action development, and providing monthly performance reporting and estimates to complete. Baseline management includes scope management and change control to ensure work is performed within the project baseline.

The scope under this task also includes project integration support of the Department of Energy Idaho Operations Office in regular weekly conference calls and quarterly meetings with the Environmental Protection Agency and Idaho Department of Health and Welfare in order to meet the requirements of the Federal Facility Agreement and Consent Order (FFA/CO).

The general scope of this task for Alternative 1—P&T and Alternative 2—ISB, P&T, and MNA is the same. The level of project management during RD/RA SOW development and RD/RA Construction is estimated at a higher level than during Remedial Action Operations.

# COST ESTIMATE SUPPORT DATA RECAPITULATION

Project Title:

OU 1-07B ROD Amendment Alternatives

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Estimate Type: File:

6223-AD

Approved By:

#### V.A.2 Schedule

The schedule for this task runs from 1995 to 2030. The total estimate includes actual cost through FY 1999 and estimated cost from FY 2000 through FY 2030. See Appendix A and B for the summary schedule for each alternative.

#### V.A.3 Cost Basis

The following information is based on actual resources and costs experienced on the project from FY 1995 through FY 1999.

Resources for this task include the following:

- Waste Area Group 1 PBS Manager
- Waste Area Group 1 Project Engineer
- Project Manager
- RD/RA Manager
- Project Engineer
- Project Controls Engineer
- Cost Estimator
- Administrative Support

Appendix C provides the Life Cycle Analysis for Alternative 1 and 2, while Appendix D provides a more detailed Cost Summary Analysis by fiscal year for each alternative.

#### V.A.3.a Alternative 1—Pump and Treat

For Alternative 1, the project management continues at a steady level through FY 2003 in support of completion of ISB and ISCO field evaluations, design and construction of the NPTF, design and construction of the NGWTF, and design and construction of the DPTUs. The level of project management decreases significantly in FY 2004 when all three pump and treat systems are in operation and when D&D is performed on the GWTF and ASTU. From FY 2005 to FY 2030, project management is provided at a level appropriate for ongoing treatment system operations, biannual groundwater monitoring, and five year reviews beginning in FY 2005.

#### COST ESTIMATE SUPPORT DATA RECAPITULATION

Project Title: OU 1-07B ROD Amendment Alternatives

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Date: August 21, 2000

Estimate Type: Planning File: 6223-AD

Approved By:

#### V.A.3.b Alternative 2—ISB, Pump and Treat, and MNA

For Alternative 2, the project management continues at a steady level through FY 2002 in support of completion of the ISB field evaluation, design and construction of the NPTF, and design and construction of the ISB Treatment System. The level of project management decreases significantly in FY 2003 when the NPTF and ISB systems are in operation and when D&D is performed on the GWTF and ASTU. From FY 2004 to FY 2030, project management is provided at a level appropriate for ongoing treatment system operations, biannual groundwater monitoring, and five year reviews beginning in FY 2005.

### V.B WBS1.2 Treatability Studies

#### V.B.1 Scope

This task covers planning and implementation of treatability studies on five innovative technologies in accordance with the OU 1-07B ROD. The technology evaluation is conducted using a three step process that includes (1) initial evaluations, (2) lab studies, and (3) field evaluations. As of September 1999, evaluations were completed on two of the technologies including metal enhanced reductive dechlorination and grout. Field evaluations were implemented for MNA and ISB. Design of a field evaluation was completed for ISCO, but the decision to perform the ISCO field evaluation was dependent on the success of the ISB field evaluation.

The general scope for all treatability studies includes technical integration of technological evaluation activities, development of work plans for lab studies and field evaluations, conducting lab studies, design and construction for field evaluations, operations of treatment systems for field evaluations, well design and construction, sampling and analysis during field evaluations, and data analysis and reporting of lab and field evaluation results. The scope also includes preparing field demonstration reports to summarize the results of the technological evaluations and to recommend and facilitate agency decisions based on the results of the field evaluations.

The scope of this task for Alternative 1—P&T and Alternative 2—ISB, P&T, and MNA varies based on the outcomes of the technological evaluations. Alternative 1 assumes that none of the alternate technologies are determined to be more effective than the base case pump and treat remedy. Alternative 2 is based on ISB and MNA being determined to be better than the base case pump and treat remedy for the hot spot and distal zone, respectively.

• Alternative 1—For this alternative, field evaluations are conducted for ISB, ISCO, and MNA. Field evaluation reports are prepared for ISB and ISCO. The ISCO field evaluation follows the ISB field evaluation at the hot spot and two FDR are prepared. The first FDR documents the results of the ISB field evaluation, the earlier decisions on metal enhanced

## **COST ESTIMATE SUPPORT DATA RECAPITULATION**

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Estimate Type: Planning File: 6223-AD

Approved By:

reductive dechlorination and grout, and provides a status on the MNA field evaluation. A second FDR documents the results of the ISCO and MNA field evaluations.

Alternative 2—For this alternative, field evaluations are conducted for ISB and MNA. One
FDR is prepared documenting the results of both the ISB and MNA. Based on the results of
the field evaluations, no second FDR is necessary and the ISCO field evaluation is not
performed. A proposed plan and ROD amendment are prepared to implement the agency
decision in the FDR for ISB and MNA.

#### V.B.2 Schedule

- Alternative 1—The ISB field evaluation is finished in early FY 00. The first FDR is prepared and submitted in FY 00. The ISCO field evaluation is conducted from second quarter FY 00 through the first quarter FY 01. The MNA field evaluation continues during FY 00 and is completed in FY 01. The second FDR is prepared and submitted in FY 01.
- Alternative 2—The ISB field evaluation is finished in early FY 00 but continues during FY 00 as a pre-design optimization activity. The MNA field evaluation is also finished in early FY 00 but also continues during FY 00 as an interim activity. The FDR is prepared and submitted in early FY 00. A proposed plan and ROD amendment are prepared in FY 00. The ROD is finalized in FY 01.

#### V.B.3 Cost Basis

The tasks and cost basis described below are based on planning performed in FY 99 and FY 00. This information is also based on actual resource needs and costs experienced on the project from FY 1995 through FY 1999. Cost basis information is provided below. For the majority of the tasks identified below, detailed cost estimates were previously developed and have been utilized in this planning estimate.

#### V.B.3.a Alternative 1—Pump and Treat

- a. ISB Technical Integration—Technical integration during preparation of the field evaluation report in FY 00.
- b. ISB Field Evaluation Report—Preparation of the field evaluation report in FY 00, documenting the results of the ISB field evaluation performed in FY 99.
- c. ISCO Technical Integration—Technical integration during the performance of the ISCO field evaluation in FY 00.

#### COST ESTIMATE SUPPORT DATA RECAPITULATION

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OU 1-07B ROD Amendment Alternatives

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Estimate Type:

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File:

6223-AD

Approved By:

- d. ISCO Field Evaluation—The field evaluation, to be conducted in FY 00, includes the scope as described in the ISCO Field Evaluation Work Plan, November 1999. These activities include: (1) pre-ISCO baseline sampling, clean water flood, and tracer test, (2) ISCO treatment system construction, startup, and pre-final inspection, and (3) performance of the ISCO field evaluation, including an optimization phase and a validation phase.
- e. ISCO Field Evaluation Report—Preparation of the Field Evaluation Report in late FY 00, documenting the results of the ISCO field evaluation performed in FY 00.
- f. MNA Technical Integration—Technical integration during the performance of the MNA field evaluation in FY 00.
- g. MNA Vertical Profile Sampling—Vertical profile sampling in FY 00 and FY 01 in accordance with the Groundwater Monitoring Plan.
- h. MNA Data Analysis and Site Conceptual Model Update—Data review and analysis from groundwater monitoring in FY 00. Preparation of update to Site Conceptual Model in FY 00.
- i. MNA Monitoring Wells—Design, construction, and development of three new monitoring wells in FY 00. Sampling and analysis of the P-Q inter-bed during the drilling of the three new monitoring wells in FY 00. Preparation of Well Completion Report for monitoring wells. Well site reseeding and access road graveling.
- j. MNA Modeling—Perform modeling to support MNA field evaluation.
- k. FDR #1—The first FDR documents the results of the ISB field evaluation, the earlier decisions on metal enhanced reductive dechlorination and Grout, and provides a status on the MNA field evaluation. This FDR is prepared in FY 00.
- 1. FDR #2—The second FDR documents the results of the ISCO and MNA field evaluations. This FDR is prepared in FY 01.
- m. Treatability Studies Technical Integration—Technical integration during the preparation of the second FDR in FY 01.

#### V.B.3.b Alternative 2—ISB, Pump and Treat, and MNA

a. ISB Technical Integration—Technical integration during ISB pre-design activities in FY 00 as listed below.

#### COST ESTIMATE SUPPORT DATA RECAPITULATION

Project Title: OU 1-07B ROD Amendment Alternatives

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Estimate Type: Planning File: 6223-AD

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- b. ISB Field Evaluation Report—Preparation of the field evaluation report in FY 00, documenting the results of the ISB field evaluation performed in FY 99.
- c. ISB Modeling—Modeling for process optimization performed in FY 00.
- d. ISB Pre-Design Optimization—ISB treatment system pre-design operations monitor electron donor persistence and distribution in FY 00.
- e. ISB Alternate Electron Donor Evaluation—Perform an alternate electron donor evaluation lab study.
- f. ISB Design Optimization Work Plan—Preparation of the ISB Design Optimization Work Plan in FY 00 as described in the FDR to cover continuation of ISB treatment system operations and support further information gathering for the final ISB treatment system design.
- g. ISB Performance Monitoring Strategy Development—Performing a data quality objective process to develop the performance monitoring strategy for ISB at the hot spot.
- h. MNA Technical Integration—Technical integration during the performance of the MNA field evaluation in FY 00.
- i. MNA Vertical Profile Sampling—Vertical profile sampling in FY 00 and FY 01 in accordance with the Groundwater Monitoring Plan.
- j. MNA Data Analysis and Site Conceptual Model Update—Data review and analysis from groundwater monitoring in FY 00. Preparation of update to Site Conceptual Model in FY 00.
- k. MNA Monitoring Wells—Design, construction, and development of three new monitoring wells in FY 00. Sampling and analysis of the P-Q inter-bed during the drilling of the three new monitoring wells in FY 00. Preparation of Well Completion Report for monitoring wells. Well site reseeding and access road graveling.
- 1. MNA Modeling—Perform modeling to support MNA field evaluation.
- m. MNA Performance Monitoring Strategy Development—Performing a process to develop the performance monitoring strategy for MNA in the distal zone.
- n. FDR—One FDR is prepared, documenting the results of both the ISB and MNA.
- o. Proposed Plan and ROD Amendment—A proposed plan and ROD amendment are prepared to implement the agency decision in the FDR for ISB and MNA.

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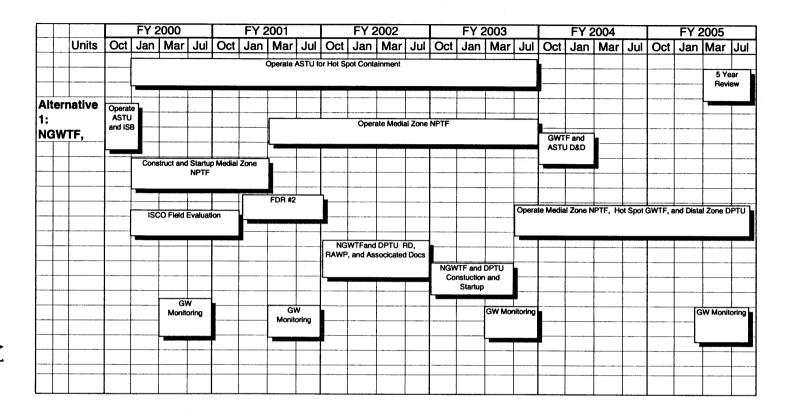
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# Appendix A

**Alternative 1 Schedule: New Groundwater Treatment Facility,** New Pump and Treat Facility, and **Dissolved Phase Treatment Unit** 



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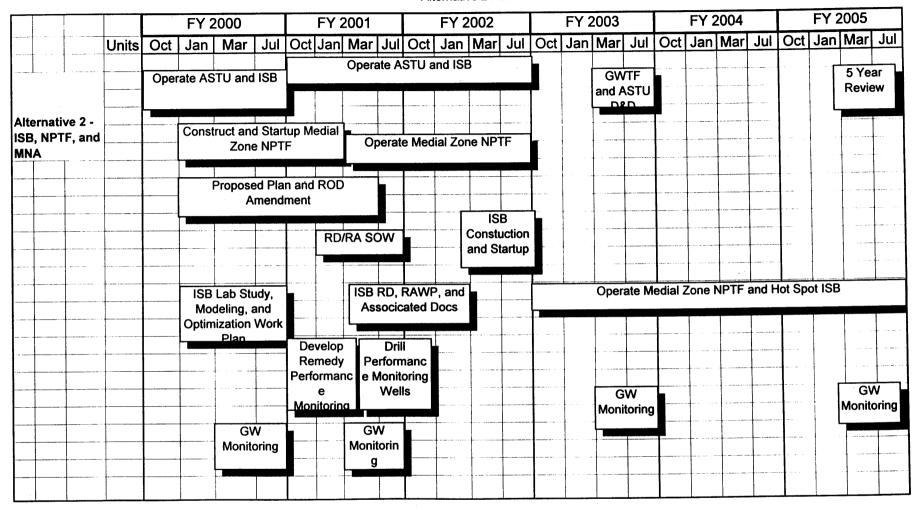
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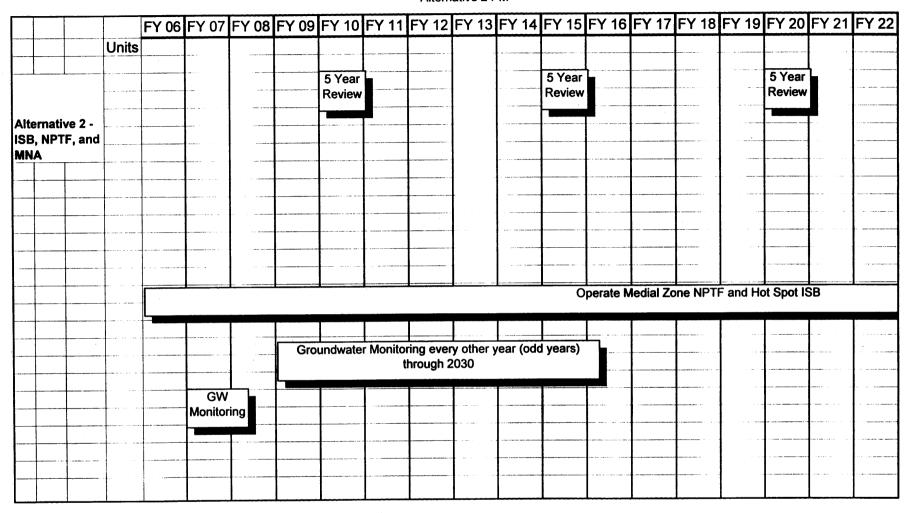
# Appendix B

Alternative 2 Schedule: In Situ Bioremediation, New Pump and Treat Facility, and Monitored Natural Attenuation

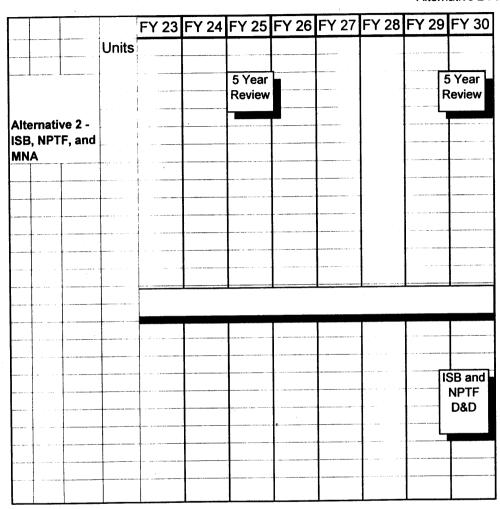
Alternative 2 PM



Alternative 2 PM



Alternative 2 PM



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# Appendix C Alternative 1 & 2 Life Cycle Cost Analysis

					LIFE C	YCLE COST A	NALYSIS		
			YEAR	WAG 1/OU 1-07B	ROD Amendment Alterna	ite 1 Capital Costs	WAG 1/OU 1-07B I	ROD Amendment Alternate	1 Operating Costs
Year	Escalation	Discount Rate	ILAN	CURRENT 1999 DOLLARS	NON-ESCALATED* DOLLARS	NET PRESENT VALUE @ 7%	CURRENT 1999 DOLLARS	NON-ESCALATED* DOLLARS	NET PRESENT VALUE @ 7%
C	1	1	1999	1,769,000	\$1,769,000	\$1,769,000	17,071,000	\$17,071,000	\$17,071,000
1	1	0.934579439	2000	1,913,000	\$1,913,000	\$1,787,850	5,023,600	\$5,023,600	\$4,694,953
2	2 1	0.873438728	2001		\$0	\$0	2,308,290	\$2,308,290	\$2,016,150
3	1	0.816297877	2002		\$0	\$0	1,327,890	\$1,327,890	\$1,083,954
4	1	0.762895212	2003	237,148	\$237,148	\$180,919	3,660,007	\$3,660,007	\$2,792,202
5	1	0.712986179	2004	229,173	\$229,173	\$163,397	715,290	\$715,290	\$509,992
6	1	0.666342224	2005	1,055,386	\$1,055,386	\$703,249	645,500	\$645,500	\$430,124
7	1	0.622749742	2006	2,096,683	\$2,096,683	\$1,305,709	621,290	\$621,290	\$386,908
8	3 1	0.582009105	2007		\$0	\$0	530,800	\$530,800	\$308,930
9		0.543933743	2008		\$0	\$0	544,790	\$544,790	\$296,330
10	1	0.508349292	2009		\$0	\$0	539,400	\$539,400	\$274,204
11		0.475092796	2010		\$0	\$0	637,790	\$637,790	\$303,009
12		0.444011959	2011		\$0	\$0	557,500	\$557,790 \$557,500	\$247,537
13		0.414964448	2012		<b>\$</b> 0	\$0			
14		0.387817241	2012		\$0		544,790	<b>\$544,790</b>	\$226,068
15		0.36244602	2013			\$0	539,400	\$539,400	\$209,189
16		0.338734598	2014	<u> </u>	\$0	\$0	594,590	\$594,590	\$215,507
17		0.31657439	2016		\$0	\$0	574,000	\$574,000	\$194,434
18		0.31657439		<del></del>	\$0	\$0	571,490	\$571,490	\$180,919
19		0.276508333	2017		\$0	\$0	539,400	\$539,400	\$159,589
			2018		\$0	\$0	1,036,859	\$1,036,859	\$286,700
20		0.258419003	2019		\$0	\$0	530,800	\$530,800	\$137,169
21		0.241513087	2020		\$0	\$0	587,990	\$587,990	\$142,007
22		0.225713165	2021		\$0	\$0	566,100	\$566,100	\$127,776
23		0.210946883	2022		\$0	\$0	594,590	\$594,590	\$125,427
24		0.19714662	2023		\$0	\$0	530,800	\$530,800	\$104,645
25		0.184249178	2024		\$0	\$0	544,790	\$544,790	\$100,377
26		0.172195493	2025		\$0	\$0	582,600	\$582,600	\$100,321
27		0.160930367	2026		<b>\$</b> 0	\$0	621,290	\$621,290	\$99,984
28		0.150402212	2027		<b>\$</b> 0	<b>\$</b> 0	222,900	\$222,900	\$33,525
29		0.140562815	2028		\$0	\$0	236,890	\$236,890	\$33,298
30		0.131367117	2029		\$0	<b>\$</b> 0	231,500	\$231,500	\$30,411
31		0.122773007	2030		\$0	\$0	329,890	\$329,890	\$40,502
32		0.114741128	2031		<b>\$</b> 0	\$0	2,863,186	\$2,863,186	\$328,525
33		0.107234699	2032		\$0	<b>\$</b> 0		\$0	\$0
34		0.100219345	2033		<b>\$</b> 0	\$0		\$0	\$0
35		0.093662939	2034		\$0	\$0		<b>\$</b> 0	\$0
36		0.087535457	2035		<b>\$</b> 0	<b>\$</b> 0		<b>\$</b> 0	\$0
37		0.081808838	2036		\$0	<b>\$</b> 0		\$0	\$0
38		0.076456858	2037		<b>\$</b> 0	<b>\$</b> 0		\$0	\$0
39		0.071455008	2038		\$0	\$0		\$0	\$0
40	1.229874	0.066780381	2039		\$0	\$0		. \$0	\$0
			SUBTOTALS	\$7,300,390	\$7,300,390	\$5,910,124	\$47,027,002	\$47,027,002	\$33,291,60
		(\$18,562,000)	TPC	54,327,392	54,327,392	39,201,790			

<sup>\*</sup>The NPV calculations use an overall discount rate of 7%.

<sup>\*</sup> Totals for 1999 represent Actuals from FY95 to FY99

					Lif	e Cycle Cost	Analysis	·	<del></del>
		7%		WAG 1/OU 1-07B		Alternate 2 Capital	WAG 1/OU 1-07B R	OD Amendment Alte	rnate 2 Operating
			YEAR	CURRENT 1999	ESCALATED*	NET PRESENT	CURRENT 1999	ESCALATED*	NET PRESENT
Year	Escalation Disc	ount Rate		DOLLARS	DOLLARS	VALUE @ 7%	DOLLARS	DOLLARS	VALUE @ 7%
0	1	1	1999	\$1,769,000	\$1,769,000	\$1,769,000	\$17,071,000	\$17,071,000	\$17,071,000
1	1 0.9	34579439	2000	\$1,913,000	\$1,913,000	\$1,787,850	\$3,600,600	\$3,600,600	\$3,365,047
2	1 0.8	73438728	2001	\$132,206	\$132,206	\$115,474	\$1,390,390	\$1,390,390	\$1,214,420
3	1 0.8	16297877	2002	\$95,285	\$95,285	\$77,781	\$1,019,990	\$1,019,990	\$832,616
4	1 0.7	62895212	2003		\$0	\$0	\$3,352,107	\$3,352,107	\$2,557,306
5	1 0.7	12986179	2004		\$0	<b>\$</b> 0	\$715,290	\$715,290	\$509,992
6	1 0.6	66342224	2005		\$0	\$0	\$645,500	\$645,500	\$430,124
7	1 0.6	22749742	2006		\$0	\$0	\$621,290	\$621,290	\$386,908
8	1 0.5	82009105	2007		\$0	<b>\$</b> 0	\$530,800	\$530,800	\$308,930
9	1 0.5	43933743	2008		\$0	<b>\$</b> 0	\$544,790	\$544,790	\$296,330
10	1 0.5	08349292	2009		\$0	\$0	\$539,400	\$539,400	\$274,204
11	1 0.4	75092796	2010		\$0	\$0	\$637,790	\$637,790	\$303,009
12	1 0.4	44011959	2011		\$0	\$0	\$557,500	\$557,500	\$247,537
13	1 0.4	14964448	2012		\$0	\$0	\$544,790	\$544,790	\$226,068
14	1 0.3	87817241	2013		\$0	\$0	\$539,400	\$539,400	\$209,189
15	1 0.	.36244602	2014		\$0	\$0	\$594,590	\$594,590	\$215,507
16	1 0.3	38734598	2015		\$0	\$0	\$574,000	\$574,000	\$194,434
17	1 0.	.31657439	2016		\$0	\$0	\$571,490	\$571,490	\$180,919
18	1 0.2	95863916	2017		\$0	\$0	\$539,400	\$539,400	\$159,589
19	1 0.2	76508333	2018		\$0	\$0	\$1,036,859	\$1,036,859	\$286,700
20	1 0.2	58419003	2019		\$0	\$0	\$530,800	\$530,800	\$137,169
21	1 0.2	41513087	2020		\$0	<b>\$</b> 0	\$587,990	\$587,990	\$142,007
22	1 0.2	25713165	2021		\$0	\$0	\$566,100	\$566,100	\$127,776
23	1 0.2	10946883	2022		\$0	\$0	\$594,590	\$594,590	\$125,427
24	1 0.	19714662	2023		\$0	\$0	\$530,800	\$530,800	\$104,645
25	1 0.1	84249178	2024		\$0	\$0	\$544,790	\$544,790	\$100,377
26	1 0.1	72195493	2025		\$0	\$0	\$582,600	\$582,600	\$100,321
27	1 0.1	60930367	2026		\$0	\$0	\$621,290	\$621,290	\$99,984
28	1 0.1	50402212	2027		\$0	\$0	\$222,900	\$222,900	\$33,525
29	1 0.1	40562815	2028		\$0	\$0	\$236,890	\$236,890	\$33,298
30	1 0.1	31367117	2029		\$0	\$0	\$231,500	\$231,500	\$30,411
31	1 0.1	22773007	2030	·	\$0	\$0	\$329,890	\$329,890	\$40,502
32		14741128	2031		\$0	\$0	\$1,419,172	\$1,419,172	\$162,837
			SUBTOTALS	\$3,909,491	\$3,909,491	<b>\$3,750,105</b>	\$42,626,288	\$42,626,288	\$30,508,109
09/06/00			TPC	46,535,779	46,535,779	34,258,214			

<sup>\*</sup>The NPV calculations use an overall discount rate of 7%.

<sup>\*</sup> Totals for 1999 represent Actuals from FY95 to FY99

## **COST ESTIMATE SUPPORT DATA RECAPITULATION**

Project Title:

OU 1-07B ROD Amendment Alternatives

Estimator:

J. D. Folker

Date:

August 21, 2000

Estimate Type:

Planning

File:

6223-AD

Approved By:

# Appendix D Alternative 1 & 2 Detailed Cost Summary Analysis

Bechtel BWXT Idah	o, LLC	SUMMARY SHEET						
Rev 10-96	_							
Page 1 of 1		_						
Project	WAG 1/OU 1-07 B/ROD Amendment Alternatives  Alternative 1 & 2	Туре	of Est.	Planning	_ File No.	6223-AD	_ Date	09/06/00
Location	Test Area North - INEEL				File Name		Prep'd By	J. D. Folker G. D. Mecham
Requester	J. S. Rothermel	<del></del>						G. D. Mecham
			ALTERN	ATIVE # 1	ALTERNATIVE # 2			I i i
ACCT.				NGWTF, NPTF	ISB, NPTF			
NO.	DESCRIPTION			and DPTUs	and MNA			
	TOTAL CAPITAL COST		7,3	00,390	3,909,49	1		
	TOTAL CAPITAL COST IN FY99 DOLLARS		7,3	00,390	3,909,49	1		
	TOTAL CAPITAL COST IN ESCALATED DOLLARS		7,3	00,390	3,909,49	1		
	TOTAL CAPITAL COST IN NET PRESENT VALUE		5,9	10,124	3,750,10	5		
	TOTAL OPERATIONS (100 YEARS)		47,0	27,002	42,626,288	В		
	TOTAL OPERATIONS COST IN FY99 DOLLARS	\$	47,0	27,002	42,626,28			
	TOTAL OPERATIONS COST IN ESCAL. DOLLARS	\$	47,0	27,002	42,626,588	8		
	TOTAL OPERATIONS COST IN NPV	\$	33,2	91,666	30,508,109	9		
								L
	TOTAL PROJECT COST IN FY99 DOLLARS	\$	54,3	27,392	46,535,779	9		
	TOTAL PROJECT COST IN ESCALATED DOLLARS	\$	54,3	27,392	46,536,079	9		
	TOTAL PROJECT COST IN NET PRESENT VALUE	\$	39,2	01,790	34,258,214	4		

#### SUMMARY OF DETAILED COST ESTIMATE

Rev 10-96 Page 2 of 19

Page ∠or	19					
Project	WAG 1/OU 1-07 B/ROD Amendment Alternatives	Type of Est.	Planning	File No.	6223-AD Date	09/06/00
•	Alternative 1 & 2	Source (E) Eng. Est.		File Name	o Prep'd By	J. D. Folker
Location	Test Area North - INEEL	(V) Vendor				
Requester	J. S. Rothermel	(P) Pur, Order				

		ALTERNATIVE # 1	ALTERNATIVE # 2	
ACCT.		NGWTF, NPTF	ISB, NPTF	
NO.	DESCRIPTION	and DPTUs	and MNA	
	FFA/CO Management and Oversight	9,080,400	9,080,400	
	RD/RA SOW	443.000	443,000	
1.1.1	Project Management	8,637,400	8,637,400	
1.1.2	ROD Amendment and RD/RA SOW	8,037,400	0,037,400	
	Treatability Studies	12,768,000	10,735,000	
1.2	Treatability Studies - Pump and Treat	12,768,000	10,100,000	
1.2.1	Treatability Studies - Pump and Treat  Treatability Studies - Pump and Treat	12,700,000	10,735,000	
1.2.1		935,321	601,206	
1.3	Remedial Design	469000		
1.3.1	Phase C RAWP and NPTF Design	115,357	469,000	
1.3.2	NGWTF Design	115,357	10,415	
1.3.2	ISB Design Phase C RAWP and Supporting Documents	121,791	121,791	
1.3.3	Phase C HAWP and Supporting Documents  DPTU Design	229,173	121,701	
	Remedial Action Construction	6,365,069	3,308,285	
1.4		1,300,000	1,300,000	
1.4.1	NPTF Extraction Wells NPTF Construction	1,913,000	1,913,000	
1.4.2	NGWTF Construction	1,055,386	1,310,000	
1.4.3	ISB Construction	1,000,000	95,285	
	Remedy Performance Monitoring Wells	0	0,20	
1.4.4 1.4.5	DPTU Construction	2,096,683		
1.4.5		7,300,390	3,909,491	
	TOTAL CAPITAL COST (1.3 & 1.4)	7,300,390	1 3,505,451	
			40.000 400	
	Remedial Action - Operations (31 Year Duration)	13,991,100		
2.1.1	Phase B Hot Spot Containment Operations	5,985,700	5,985,700	
2.1.2	Phase C Operations	8,005,400	7,081,700	
	Surveillance and Monitoring	5,486,140	5,486,140	
2.2.1	Groundwater Monitoring	5,486,140	5,486,140	
2.2.2	Remedy Performance Monitoring			
2.3	Decontamination and Dismantlement	5,701,362	4,257,348	
2.3.1	GWTF D&D	1,291,087	1,291,087	
2.3.2	ASTU D&D	1,104,820	1,104,820	
2.3.3	NGWTF D&D	1,415,261		
2.3.3	ISB D&D		258,772 442,269	
2.3.4	NPTF D&D	442,269 1,160,400	1,160,400	<u></u>
2.3.5	Well Abandonement	1,160,400	1,160,400	
2.3.6	DPTU D&D			
	TOTAL OPERATIONS (includes total of 31 YEARS) 0	0 47,027,002	42,626,288	
	TOTAL PROJECT COSTS (TPC)	\$ 54,327,392	46,535,779	

#### DETAILED COST ESTIMATE (CONT.SHEET)

Rev 10-96

Page 3 of 19 Project

WAG 1/OU 1-07 B/ROD Amendment Alternatives

ALTERNATIVE 1 NGWTF, NPTF, and DPTUs

6223-AD

Date

CCT.	DESCRIPTION	E,V,	MAT'L	MAT'L UT.	UNIT LAB.	TOTAL	LABOR	LABOR	MAT'L	OTHER	TOTAL
NO.		P,H	UNIT	COST	HRS	LAB. HRS.	RATE	COST	COST	COST	COST
1.1	Alternative 1 FFA/CO Management and Oversight										
1.1.1	Pre-ROD Review and Scoping		1 ls	443000			1	************	443000		
1.1.2	Project Management		1,3	77000	*		<del>  </del>		443000		44:
	General Project Management-(FY 1995-1999) 5 Year Duration		5 yr	578400			<del>├</del> ─┼				
	General Project Management-(2000-2003) 4 Year Duration		3 91	370400			<b></b>		2892000		2,8
	WAG 1 PBS Manager		0.2 fte		2,080	416	75		0		
	WAG 1 Project Engineer		0.1 fte	<del> </del>	2,080	208	65	31,200	0		
	Project Manager		1.0 fte		2,080	2.080	75	13,520 156,000	0		
	RD/RA Manager		1.0 fte		2,080	2,080	75	156,000			!
	Project Engineer		0.10 fte		2,080	208	65	13,520			1
	Project Controls Engineer		1.0 fte		2,080	2,080	55	114,400	0		1
	Admin Support		0.2 fte		2,080	416	45	18,720	l ö		<u> </u>
	Total Cost (Per Year)						-	10,720			5
	Total Cost (Per Year Rounded)										5
	General Project Management-(FY 2000-2003) 4 Year Duration	***************************************	4 vr	503,400		0			2,013,600		2,0
	General Project Management-(2004) 1 Year Duration						-		2,013,000		2,0
	WAG 1 PBS Manager		0.2 fte		2,080	416	75	31,200	0		
	WAG 1 Project Engineer		0.1 fte		2,080	208	65	13,520	0		
	Project Manager		0.5 fte		2.080	1,040	75	78,000	ō		
	RD/RA Manager		0.5 fte		2,080	1,040	75	78,000	ō		
	Project Engineer		0.00 fte		2,080	0	65	75,550	ō		
	Project Controls Engineer		0.5 fte		2,080	1,040	55	57,200	0		
	Admin Support		0.2 fte		2,080	416	45	18,720	ō		
	Total Cost (Per Year)										2
	Total Cost (Per Year Rounded)					0		0	0		2
	General Project Management-(FY 2004) 1 Year Duration		1 yr	276,600		0		0	276,600		2
	General Project Management-(2005) 1 Year Duration							·			
	WAG 1 PBS Manager		0.2 fte		2,080	416	75	31,200	0		
	WAG 1 Project Engineer		0.2 fte		2,080	416	65	27,040	0		
	Project Manager		0.4 fte		2,080	832	75	62,400	0		
	RD/RA Manager		fte		2,080	Ö	75	0	0		
	Project Engineer		fte		2,080	0	65	0	0		
	Project Controls Engineer		0.2 fte		2,080	416	55	22,880	0		
	Admin Support		0.2 fte		2,080	416	45	18,720	0		
	Total Cost (Per Year)										10
	Total Cost (Per Year Rounded)					0		0	0		10
	General Project Management-(FY 2005) 1 Year Duration		1 yr	162,200		0		0	162,200		16

Bechtel	BWXT	Idaho.	LLC
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DETAILED COST ESTIMATE (CONT.SHEET)

Page 4 of 19 Project

WAG 1/OU 1-07 B/ROD Amendment Alternatives

6223-AD

ALTERNATIVE 1	
NGWTF, NPTF, and DPTUs	

ACCT.	DESCRIPTION	E,V,	MAT'L	MAT'L UT.	UNIT LAB.	TOTAL	LABOR	LABOR	MAT'L	OTHER	TOTAL
NO.		P,H	UNIT	COST	HRS	LAB. HRS.	RATE	COST	COST	COST	COST
	General Project Management-(2006-09, 11-14, 16-19, 21-24, 26-29) 20 Year Durat										
	WAG 1 PBS Manager		0.15 fte		2,080	312	75	23,400	. 0		23,40
	WAG 1 Project Engineer		0.15 fte		2,080	312	65	20,280	0		20,2
	Project Manager		0.2 fte		2,080	416	75	31,200	0		31,2
	RD/RA Manager		fte		2,080	0		0	0		
	Project Engineer		fte		2,080	0	65	0	. 0		
	Project Controls Engineer		0.15 Ne		2,080	312	55	17,160	0		17,1
	Admin Support		0.15 fte		2,080	312	45	14,040	0		14,0
	Total Cost (Per Year)										106,0
	Total Cost (Per Year Rounded)					0		0	0		106,
	General Project Management-(2006-09, 11-14, 16-19, 21-24, 26-29) 20 Year Durati	ion	20 yr	106,100		0		0	2,122,000		2,122,0
	General Project Management (2010, 15, 20, 25, 30) 5 Year Duration										
	WAG 1 PBS Manager		0.2 fte		2,080	416	75	31,200	0		31,2
	WAG 1 Project Engineer		0.2 fte		2,080	312	65	20,280	0		20,
	Project Manager		0.2 fte		2,080	416	75	31,200	0		31,
	RD/RA Menager		fle		2,080	0	75	0	0		
	Project Engineer		· fie		2,080	0	85	0	0		
	Project Controls Engineer		0.20 fte		2,080	416	55	22,880	0		22
	Admin Support		0.20 fte		2,080	416	45	18,720	0		18,
	Total Cost (Per Year)	•									124,
	Total Cost (Per Year Rounded)					0		0	0		124
	General Project Management-(2010, 15, 20, 25, 30) 5 Year Duration		5 yr	124,300		0		0	621,500		621,
	Detailed Work Package Update-(FY 2000-2003) 4 Year Duration						T				
	Cost Estimator		0.08 fte		2080	160	65	10,400			10,
-	Admin Support		0.02 fte		2080	40	45	1,800			1,
	Project Controls Support		0.08 fte		2080	180	50	8,000			8,
	Computer Upgrade		2.0 04	7000					14,000		14,
	Travel for Agency Meetings		4.0 ea	2000					8,000		8,
	Total Cost (Per Year)										42
	Total Cost (Per Year Rounded)					0		0	0		42
	Detailed Work Package Update-(FY 2000-2003) 4 Year Duration		4 yr	42,200		0		0	168,800		168
	Detailed Work Package Update-(FY 2004-2030) 27 Year Duration										
	Cost Estimator		0.02 fte		2080	40	65	2,600			2
	Admin Support		0.005 fte		2080	10	45	450			
	Project Controls Support		0.02 fte		2080	40	50	2,000			2
	Computer Upgrade		1.0 ea	7000					7,000		7
	Travel for Agency Meetings		1.0 ea	2000					2,000		2
	Total Cost (Per Year)										14
	Total Cost (Per Year Rounded)					0		. 0	0	T I	14
	Detailed Work Package Update-(FY 2004-2030) 27 Year Duration		27 yr	14,100			1		380,700		380
.1.2	Project Management-FY 1995-2004 (Capital Costs)						T		I	1	8,637

DETAILED COST ESTIMATE (CONT.SHEET)

Rev 10-96

Page 5 of 19

Project WAG 1/OU 1-07 B/ROD Amendment Alternatives

ALTERNATIVE 1
NGWTF, NPTF, and DPTUs

Type of Est.

anning

File No.

6223-AD

Date

ACCT. NO.	DESCRIPTION	E,V,	MAT'L UNIT	MAT'L UT.	UNIT LAB. HRS	TOTAL	LABOR	LABOR	MAT'L	OTHER	TOTAL
1.2	Treatability Studies	Р,П	UNII	COST	нно	LAB, HRS,	RATE	COST	COST	COST	COST
1.2.1	Treatability Studies- Pump and Treat		<u> </u>	+			+			<del></del>	NEW
7.4.1	Treatability Studies- Pump and Treat(Thru FY 99)		1 ls	8002000		<del> </del>			8002000		0.000.00
	ISB Technical Integration Activities (FY 00)		1 is	80000		<u> </u>	+		80000	<del></del>	8,002,00
	ISB Preparation of Field Evaluation Final report (FY 00)		1 is	46000		<del> </del>	++		46000		80,00 46,00
	ISCO Technical Integration Activities (FY 00)		1 is	225000			+		225000	ļ	225,00
	ISCO Field Evaluation (FY 00)		1 is	1980000			++		1980000		1,980,00
	ISCO Field Evaluation (FY 01)		- 1 is	91000		<del> </del>	+	*******	91000	<del>                                     </del>	91,00
	ISCO Field Evaluation Report (FY 00)		1 ls	75000			++		75000		75,00
	ISCO Field Evaluation Report (FY 01)		1 ls	17000			+		17000		17.00
	MNA Technical Integration Activities (FY 00)		1 Is	81000			<del>+</del>		81000		81.00
	MNA Vertical Profile Sampling (FY 00)		1 is	266000			+		266000		266,00
	MNA Vertical Profile Sampling (FY 01)		1 is	150000			T		150000		150,00
	MNA Data Analysis and Site Conceptual Model Update (FY 00)		1 Is	78000			1	***************************************	78000		78,00
	MNA Monitoring Wells (FY 00)		1 ls	738000			+ +		738000		738,00
	MNA Monitoring Wells (FY 01)		1 is	79000		1			79000		79,00
	MNA Modeling (FY 00)		1 is	85000					85000		85,00
	Field Demonstration Report # 1 (FY 00)		1 is	173000			$\top$	***************************************	173000	· · · · · · · · · · · · · · · · · · ·	173,00
	Field Demonstration Report # 2 (FY 01)		1 Is	602000	·······		1 1		602000		602,00
	Total Treatability Studies (FY99)									l	8,002,00
	Total Treatability Studies (FY00)		1								3,827,00
	Total Treatability Studies (FY01)										939,00
1.2.1	Sub Total Treatability Studies										12,768,00
1.3	Remedial Design									-	
1.3.1	Phase C Remedial Action Workplan and NPTF Design		1 Is	469000					469000		469.00
1.3.2	NGWTF Design		1 ls			· · · · · · · · · · · · · · · · · · ·			0		,
	30% NGWTF Design		1 Is	56229.341			1-1		56229.341		56,229
	30% NGWTF Design Comment Resolution and Incorporation		1 ls	6055.9243		1			6055.9243		6,056
	90% NGWTF Design		1 is	53071.26					53071.26		53,071
1.3.2	Sub Total NGWTF Design								00077.20		115,357
1.3.3	Phase C Remedial Action Workplan and Supporting Documents		***************************************		<u> </u>					<b></b>	,
	Prepare DPTU RD/RA Workplan		1 Is	105434					105434		105,434
	DPTU RD/RA WP Final Comment Resolution and Incorporation		1 Is	16357					16357		16,357
1.3.3	Sub Total Phase C Remedial Action WP and Supporting Doc's							***************************************	1	T	121,791
1.3.4	DPTU Design	1	1					77.00	1		
	30% DPTU Design		1 Is	111708			1 1		111708		111,708
	30% DPTU Design Comment Resolution and Incorporation		1 Is	12031	****				12031		12,031
	90% DPTU Design		1 is	105434					105434		105,434
1.3.4	Sub Total DPTU Design						<u> </u>		1		229,173
1.4	Remedial Action Construction						7 7		1		
1.4.1	NPTF Extraction Wells	1	1 Is	1300000			1 1		1300000	<del>                                     </del>	1,300,00
1.4.2	NPTF Construction FY 00 and 01		1 Is	1913000			<del></del>		1913000	<del>                                     </del>	1,913,00
1.4.3	NGWTF Construction		1	1		1	<del>                                     </del>		10,000	<del></del>	1,513,00
	NGWTF RFP. Bid and Award		1 4 16	19877.687		<del> </del>			19877.687	<del></del>	19,878

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Construct NGWTF	1 is	1019000	1019000	1,019,000
Perform Pre-Final Inspection and Prepare Report	1 ls	4022.8532	4022.8532	4,023
Prepare NGWTF Draft Final Inspection Report	1 Is	12485.845	12485.845	12,486
1.4.3 Sub Total NGWTF Construction				1,055,386
1.4.4 Remedy Performance Monitoring Wells				
1.4.5 DPTU Construction				
DPTU RFP, Bid and Award	1 is	39490	39490	39,490
Construct DPTU	1 is	2024396	2024396	2,024,396
Perform Pre-Final Inspection and Prepare Report	1 ls	7992	7992	7,992
Prepare DPTU Draft Finel Inspection Report	1 is	24805	24805	24,805
1.4.5 Sub Total DPTU Construction	`			2,096,683
		7		1

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DETAILED COST ESTIMATE (CONT.SHEET)

Rev 10-96

Page 6 of 19

Project

WAG 1/OU 1-07 B/ROD Amendment Alternatives

ALTERNATIVE 1
NGWTF, NPTF, and DPTUs

Type of Est.

lanning

le No.

6223-AD

Date \_\_\_\_

NO.	DESCRIPTION	E,V, P,H	MAT'L UNIT	MAT'L UT. COST	UNIT LAB. HRS	TOTAL	LABOR	LABOR	MAT'L	OTHER	TOTAL
2.1	Alternative 1 Remedial Action Operations	F,B	UNIT	COST	нь	LAB. HRS.	RATE	COST	COST	COST	COST
2.1.1	GWTF Operations Transition to 1-07B		1 is	0400000			<b></b>				
2.1.1	Sludge treatment and Disposal			2466000					2466000		2,466,0
			1 ls	10000					10000		10,0
2.1.1	Phase B Hot Spot Containment Operations										
	Facility Operations-(FY 1995-1999) 5 Year Duration		5 yr	452400					2262000		2,262,
	Facility Operations-(FY 2000) 1 Year Duration		1 yr	324000					324000		324,
	Facility Operations-(FY 2001-2003) 3 Year Duration										
	Hot Spot Containment Facility Operations (Labor)			1							
	Project Engineer		.0.10 fte		2,080	208	65	13,520			13
	Construction Engineer		0.25 fte		2,080	520	65				
	Operations Engineer		0.25 fte		2,080			33,800			33
	Mechanical Engineer	<del></del>	0.10 fte	<del>                                     </del>	2,080	520	65	33,800			33
******	Rad Con Tech		0.05 fte		2,080	208	75	15,600			15
	Industrial Hygiene		0.10 fte	<del> </del>	2,080		45	4,680			
	Admin Support		0.10 fte	<del>-</del>	2,080	208	55 45	11,440			1
	Electrician		0.05 fte					9,360			
	Pipelitter				2,080	104	55	5,720			
	Operator		0.05 fte		2,080	104	60	6,240			
	Laborer		0.06 fte		2,080	125	55	6,864			
	Sampler		0.10 fte		2,080	208	45	9,360			
	ECL Chemist (Air Analysis)		0.05 fte		2,080	104	65	6,780			
	SMO Chemist (An Analysis)		0.05 fte		2,080	104	65	6,760			
			0.10 fte		2,080	208	65	13,520			1;
	SMO Support Sub Total- Labor Facility Operations		0.10 fte	ļ	2,080	208	65	13,520			. 13
											190
	Hot Spot Containment Waste Management (Labor) Waste Specialist										
	Admin Support		0.15 fte		2,080	312	45	14,040			14
	Rad Con Tech		0.05 fte		2,080	104	45	4,680			
	Laborer		0.10 fte		2,080	208	45	9,360			
	Operator		0.10 fte		2,080	208	45	9,360			
	Driver		0.05 fte	———	2,080	104	55	5,720			
	Safety Engineer	<del></del>	0.05 fte		2,080	104	55	5,720			
	Sub Total- Labor Waste Management		0.06 fte		2,080	166	55	9,152			
	Sub Total- Subcontract (Lab analysis)			150							50
	Hot Spot Containment Facility Operations (Material)		100 ea	130						15000	15
	Water Blind Samples		24 ea	150							
	Air Blind Samples		24 ea 24 ea	200					3600	L	3
	Misc Supplies	<u> </u>	12 ea	1000					4800		
	Misc Air Stripper Maint & Repair		12 ea	10000		-			12000		12
	Air Freight		5 ea	60					10000		10
	Printing		1500 ea	0.1					300		
	Vehicle	1	360 day	15			-+		150		
	Heating, Air Stripper		36900 kw	0.035			+		5400		5
	Misc Power, Lighting		12000 kw	0.035			-+		1291.5		1
	Air Stripper, Fan & TAN 29	1	97000 lot	0.035			+		420		
	Sub Total Hot Spot Containment Facility Operations (Material)					<del></del>	-+		3395		3
	Hot Spot Containment Waste Management (Material)										41
+	Drums		12 ea	65.000					780		

923,700	1	923,700			906,706	ηĘ	Facility Operations & Waste Mgmi(FY 2001-2003) 3 Year Duration	
307,900		0	0	0			Total Cost (Per Year Rounded)	
\$15,706							Total Cost (Per Year)	
2,580							Sub Total Hot Spot Containment Weste Management (Material)	
008,f		1800		·	150.000	12 08	Boxo8	

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DETAILED COST ESTIMATE (CONT.SHEET)

Rev 10-96

Page 7 of 19

Project	WAG 1/OU 1-07 B/ROD	Amendment Alternative

ALTERNATIVE 1
NGWTF, NPTF, and DPTUs

Type of Est. Planning

File No.

6223-AD

Date

ACCT.	DESCRIPTION	E,V,	MAT'L	MAT'L UT.	UNIT LAB.	TOTAL	LABOR	LABOR	MAT'L	OTHER	TOTAL
NO.		P,H	UNIT	COST	HRS	LAB. HRS.	RATE	COST	COST	COST	COST
2.1	Alternative 1 Remedial Action Operations									·	
2.1.2	Phase C Operations										
	NPTF Operations-(FY 2001-2003) 3 Year Duration										
	NPTF Operations (Labor)										
	Project Engineer		0.10 fte		2.080	208	65	13,520			13,5
	Construction Engineer		0.25 fte		2.080	520	65	33,800			33,8
	Operations Engineer		0.25 fte		2,080	520	65	33,800			33.8
	Mechanical Engineer		0.10 fte		2.080	208	75	15,600			15,6
	Rad Con Tech		0.05 fte		2,080	104	45	4,680			4,6
<del></del>	Industrial Hygiene		0.10 fte		2,080	208	55	11,440		<del></del>	11,4
	Admin Support		0.10 fte		2,080	208	45	9,360		<del></del>	9.3
	Electrician		0.05 fte		2,080	104	55	5,720			5,7
	Pipelitter		0.05 fte		2,080	104	60	6,240			6,2
	Operator		0.06 fte		2,080	125	55	6,864			6.8
	Laborer		0.10 fte		2,080	208	45	9,360		<del></del>	9,3
	Sampler		0.05 fte	-	2,080	104	65	6,760			6,7
	ECL Chemist (Air Analysis)		0.05 fte	·	2,080	104	65	6,760			6,7
	SMO Chemist		0.10 fte		2,080	208	65	13,520		<del>-</del>	13.5
	SMO Support		0.10 fte		2,080	208	65	13,520			13,5
	Sub Total- Labor NPTF Operations		0.10 118	<b></b>	2,080	206	- 65	13,520			
	NPTF Waste Management (Labor)			<del> </del>		***************************************					190,9
	Waste Specialist		0.15 fte	<del></del>	2,080						
	Admin Support		0.15 fte		2,080	312	45	14,040			14,0
	Rad Con Tech		0.05 fle	ļ		104	45	4,680			4,6
	Laborer		0.10 fte	-	2,080	208	45	9,360			9,3
	Operator		0.10 fte		2,080	208	45	9,360			9,3
	Driver		0.05 fte			104	55	5,720			5,7
	Safety Engineer	<del></del>			2,080	104	55	5,720			5,7
	Sub Total- Labor NPTF Waste Management		0.08 fte		2,080	166	55	9,152			9,1
											58,0
	Sub Total- Subcontract (Lab analysis)		100 ea	150						15000	15,0
	NPTF Operations (Material)										
	Water Blind Samples		24 ea	150					3600		3,6
	Air Blind Samples		24 ea	200					4800		4,8
	Misc Supplies		12 ea	1000					12000		12,0
	Misc Air Stripper Maint & Repair		1 lot	10000					10000		10,0
	Air Freight		5 ea	60					300		3
	Printing /		1500 ea	0.1					150		1
	Vehicle		360 day	15					5400		5,4
	Heating, Air Stripper		36900 kw	0.035					1291.5		1,2
	Misc Power, Lighting		12000 kw	0.035					420		4
	Air Stripper, Fan & TAN 29		97000 lot	0.035					3395		3,3
	Sub Total NPTF Operations (Material)										41,3
	NPTF Waste Management (Material)										
	Drums		12 ea	65.000				***	780		7
	Boxes		12 ea	150.000					1800		1.8
	Sub Total NPTF Waste Management (Material)						-				2.5
	Total Cost (Per Year)										307,9
	Total Cost (Per Year Rounded)					0			0		307,9
	NPTF Operations & Waste Mgmt(FY 2001-2003) 3 Year Duration		3 yr	307,900					923,700		923,7
			- 7	50.,550					323,700		923,7

DETAILED COST ESTIMATE (CONT.SHEET)

Rev 10-96

Page 8 of 19

Project	WAG 1/OU 1-07 B/ROD	Amendment Alternative

ALTERNATIVE 1
NGWTF, NPTF, and DPTUs

Type of Est. Planning

File No. 6

6223-AD Date

ACCT. NO.	DESCRIPTION	E,V, P,H	MAT'L UNIT	MAT'L UT. COST	UNIT LAB. HRS	TOTAL LAB. HRS.	LABOR RATE	LABOR COST	MAT'L COST	OTHER COST	TOTAL COST
2.1	Alternative 1 Remedial Action Operations										
2.1.2	Phase C Operations										
	NPTF/NGWTF/DPTU Operations-(FY 2004-2026) 23 Year Duration	1									
	NPTF/NGWTF/DPTU Operations (Labor)						1				
	Project Engineer		0.10 fte	<del></del>	2,080	208	65	13,520			13,520
	Construction Engineer		0.10 fte	·	2,080	520	65	33,800			33,800
	Operations Engineer		0.25 fte		2,080	520	65	33,800			33,800
	Mechanical Engineer		0.10 fte		2,080	208	75	15,600			15,60
	Rad Con Tech	<u> </u>	0.05 fte		2,080	104	45	4,680			4,68
	Industrial Hygiene	<u> </u>	0.10 fte		2,080	208	55	11,440			11,44
	Admin Support		0.10 fte		2,080	208	45	9,360			9,36
	Electrician		0.05 fte		2,080	104	55	5,720			5,72
	Pipelitter		0.05 fte		2,080	104	60	6,240			6,240
	Operator		0.06 fte		2,080	125	55	6,864			6,86
	Laborer		0.10 fte		2,080	208	45	9,360			9,360
	Sampler		0.05 fte		2,080	104	65	6,760			6,76
	ECL Chemist (Air Analysis)		0.05 fte		2,080	104	65	6,760			6,76
	SMO Chemist		0.10 fte		2,080	208	65	13,520			13,520
	SMO Support		0.10 fte		2,080	208	65	13,520			13,520
	Sub Total- Labor NPTF/NGWTF/DPTU Operations										190,94
	NPTF/NGWTF/DPTU Waste Management (Labor)										
	Waste Specialist		0.15 fte		2,080	312	45	14,040			14,04
	Admin Support		0.05 fte		2,080	104	45	4,680			4,68
	Rad Con Tech		0.10 fte		2,080	208	45	9,360			9,36
	Laborer		0.10 fte		2,080	208	45	9,360			9,36
	Operator		0.05 fte		2,080	104	55	5,720			5,72
	Driver		0.05 fte		2,080	104	55	5,720			5,72
	Safety Engineer		0.08 fte		2,080	166	55	9,152			9,15
	Sub Total- Labor NPTF/NGWTF/DPTU Waste Management			L							58,03
	Sub Total- Subcontract (Lab analysis)		100 ea	150				.,		15000	15,00
	NPTF/NGWTF/DPTU Operations (Material)						ļ				
	Water Blind Samples		24 ea	150					3600		3,60
	Air Blind Samples		24 ea	200					4800		4,80
	Misc Supplies		12 ea	1000			ļ		12000		12,00
	Misc Air Stripper Maint & Repair		1 lot	10000					10000		10,00
	Air Freight		5 ea	60					300		30
	Printing		1500 ea	0.1					150		15
	Vehicle		380 day	15					5400		5,40
	Heating, Air Stripper		36900 kw	0.035 0.035					1291.5 420		1,29 42
	Misc Power, Lighting		12000 kw 97000 lot	0.035					3395		3,39
	Air Stripper, Fan & TAN 29		8/000 lot	0.035			1		3395		41,35
	Sub Total NPTF/NGWTF/DPTU Operations (Material)		<b>_</b>	<del> </del>			<del>  </del>		<del> </del>		41,33
	NPTF/NGWTF/DPTU Waste Management (Material)		12 ea	65.000			<del>  </del>		780		78
	Drums Boxes		12 ea	150.000			<del> </del>		1800		1,80
	Sub Total NPTF/NGWTF/DPTU Waste Management (Material)		12 68	130.000		· · · · · · · · · · · · · · · · · · ·	<del>                                     </del>		1800		2.58
	1 · · · · · · · · · · · · · · · · · · ·		<del> </del>	<del>                                     </del>			<del>  </del>				307,91
	Total Cost (Per Year) Total Cost (Per Year Reynded)		<del> </del>	<del>                                     </del>		0	┼	0	0		307,91
	Total Cost (Per Year Rounded)  NPTF/NGWTF/DPTU Operations & Waste Mgmt(FY 2004-2026) 23 Year Dural		23 yr	307,900		U	<b></b>		7,081,700	ļ	7,081,70

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Rev 10-96

Page 9 of 19

Project WAG 1/OU 1-07 B/ROD Amendment Alternatives

ALTERNATIVE 1
NGWTF, NPTF, and DPTUs

ype of Est. Planning

e No.

6223-AD

ACCT.	DESCRIPTION	E,V,	MAT'L	MAT'L UT.	UNIT LAB.	TOTAL	LABOR	LABOR	MAT'L	OTHER	TOTAL
Ю.		P,H	UNIT	COST	HRS	LAB. HRS.	RATE	COST	COST	COST	COST
.2 Surveill	lance and Monitoring										
.2.1 Groundw	water Monitoring			t			1		†		
Ground	dwater Monitoring-(FY 1995-1999) 5 Year Duration		5 yr	199200			<del></del>		996000	<del></del>	996
Ground	dwater Monitoring-(FY 2000) 1 Year Duration		1 yr	327000					327000	·	327
	dwater Monitoring-(FY 2001-2030) 30 Year Duration						1		327000	<del></del>	321
	ne Sampling Round (FY 2001)		1 yr	207890			+-+		207890		207
Analys	sis and Validation of Prior Year Samples (2002)		1 yr	166490					166490		166
Statisti	ical Sampling Round (2003)		1 vr	102700			<del> </del>		102700	<del>-</del>	100
Analys	sis and Velidation of Prior Year Samples (2004)		1 yr	116690			1		116690		110
Routin	ne Sampling Round (FY 2005)		1 vr	161300			1		161300		16
Analys	sis and Validation of Prior Year Samples (2006)		1 yr	193190			<del> </del>		193190		19:
Statisti	ical Sampling Round (2007)	1	1 yr	102700	·····		++		102700		10:
Analys	sis and Validation of Prior Year Samples (2008)		1 yr	116690			1		116690		110
Routin	ne Sampling Round (FY 2009)		1 yr	111300					111300		11
Analys	sis and Validation of Prior Year Samples (2010)		1 yr	191490					191490		19
Statisti	ical Sampling Round (2011)		1 yr	129400					129400		12
Analys	sis and Validation of Prior Year Samples (2012)		1 yr	116690					116690		11
Routin	ne Sampling Round (FY 2013)		1 yr	111300					111300		11
Analys	sis and Validation of Prior Year Samples (2014)		1 yr	166490					166490		16
Statisti	ical Sampling Round (2015)		1 yr	127700					127700		12
Analys	sis and Validation of Prior Year Samples (2016)		1 yr	143390					143390		14:
Routin	e Sampling Round (FY 2017)		1 yr	111300					111300		11
·····	sis and Validation of Prior Year Samples (2018)		1 yr	166490					166490		16
	ical Sampling Round (2019)		1 yr	102700					102700		100
Analys	sis and Validation of Prior Year Samples (2020)		1 yr	141690					141690		14
Routine	e Sampling Round (FY 2021)		1 yr	138000					138000		13
	sis and Validation of Prior Year Samples (2022)		1 yr	166490					166490		16
	ical Sampling Round (2023)		1 yr	102700					102700		100
	sis and Validation of Prior Year Samples (2024)		1 yr	116690					116690		110
	e Sampling Round (FY 2025)		1 yr	136300					136300		130
	sis and Validation of Prior Year Samples (2026)		1 yr	193190					193190		193
	ical Sampling Round (2027)		1 yr	102700					102700		102
	sis and Validation of Prior Year Samples (2028)		1 yr	116690					116690		110
	e Sampling Round (FY 2029)		1 yr	111300					111300		11
	sis and Validation of Prior Year Samples (2030)		1 yr	191490			T		191490		19
	stal-Groundwater Monitoring-(FY 2001-2030) 30 Year Duration								0		4,163
		i							0		

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Page 10 of 19 Project

WAG 1/OU 1-07 B/ROD Amendment Alternatives		

ALTERNATIVE 1 NGWTF, NPTF, and DPTUs

09/06/00 6223-AD

ACCT.	DESCRIPTION	E,V,	MAT'L	MAT'L UT.	UNIT LAB.	TOTAL	LABOR	LABOR	MAT'L	OTHER	TOTAL
NO.		P,H	UNIT	COST	HRS	LAB, HRS.	RATE	COST	COST	COST	COST
2.3	Decontamination and Dismantlement								İ		
2.3.1	GWTF D & D										
	Characterization		1 ks	417818					417818		417,818
	Project Preparation		1 ls	14700					14700		14,700
	Preparation for Decontamination and Dismantlement		1 ls	10812					10812		10,812
	Facility Project Operations		1 is	244786					244786		244,786
	Facility Decontamination and Dismantlement		1 is	306999					306999		306,999
	Disposal and Transportation of Waste		1 16	16368					16368		16,368
	Project Management and Support		1 18	271974					271974	. 1	271,974
	Post-Decontamination and Dismantlement		1 ls	7630					7630		7,630
2.3.1	Sub Total GWTF D & D										1,291,087
2.3.2	ASTU D & D										-
	Characterization		1 Is	231551					231551		231,551
	Project Preparation		1 ls	14700					14700		14,700
	Preparation for Decontamination and Dismantlement		1 ls	10812					10812		10,812
	Facility Project Operations		1 ls	244786					244786		244,786
	Facility Decontamination and Dismantlement		1 is	306999	<u> </u>				306999		306,999
	Disposal and Transportation of Waste		1 is	16368		<u> </u>			16368		16,368
	Project Management and Support		1 ts	271974				·	271974		271,974
	Post-Decontamination and Dismantlement		1 ls	7630					7630		7,630
	Sub Total ASTU D & D						$\perp$				1,104,820
2.3.3	NGWTF D & D			<u> </u>							
	Characterization		1 ls	442628					442628		442,628
	Project Preparation		1 ts	14415			4		14415		14,415
	Preparation for Decontamination and Dismantlement		1 ls	9606					9606		9,606
	Facility Project Operations		1 ls	226091					226091		226,091
	Facility Decontamination and Dismantlement		1 ls	427640					427640		427,640
	Disposal and Transportation of Waste		1 18	27315			4		27315		27,315
	Project Management and Support		1 16	260246 7320		<b>!</b>			260246		260,246
	Post-Decontamination and Dismantlement	<del></del>	1 18	/320		<del> </del>			7320		7,320
	Sub Total NGWTF D & D		ļ			ļ			ļ		1,415,261
2.3.4	NPTF D & D					<b></b>			4		
	Characterization		1 ls	138321		<del>                                     </del>	4		138321		138,321
	Project Preparation		1 ls	4505			+		4505		4,505
	Preparation for Decontamination and Dismantlement		1 18	3002 70653		<del>                                     </del>	+		3002		3,002
	Facility Project Operations  Facility Decontamination and Dismantlement		1 18	133637		<del> </del>			70653		70,653 133,637
	Facility Decontamination and Dismantiement  Disposal and Transportation of Waste		1 ts	8536		<del> </del>	+		133637 8536		133,637 8,536
	Project Management and Support		1 ls	81327		<del> </del>	+		81327		8,536 81,327
	Project Management and Support  Post-Decontamination and Dismantlement		1 18	2288		<del> </del>	+		2288		2,288
	Sub Total NPTF D & D		<del></del>	2200			+		££00		442,269
2.3.4											

DETAILED COST ESTIMATE (CONT.SHEET)

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Rev 10-96

Page 11 of 19

Project WAG 1/OU 1-07 B/R

WAG 1/OU 1-07 B/ROD Amendment Alternatives

ALTERNATIVE 1
NGWTF, NPTF, and DPTUs

DETAILED COST ESTIMATE (CONT.SHEET)

Type of Est. Planning

lo. 6223-AD

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ACCT. NO.	DESCRIPTION	E,V, P,H	MAT'L UNIT	MAT'L UT.	UNIT LAB. HRS	TOTAL LAB. HRS.	LABOR	LABOR	MAT'L	OTHER	TOTAL
2.3.5	Well Abandonement	F,D	UNII	1 4451	HHS	LAB. HHS.	RATE	COST	COST	COST	COST
	Well Abandonement Planning		1 fte	1000							
	Safety, Job Control, ISMS		1 fte	1000	140	140	75		1000		11,50
	Well Head Preparation and Waste Disposal		1 118		80	80	75	6,000	0		6,00
	Equipment Operator		1 fte		600	600	<u> </u>				
	Laborer		1 fte		600	600	50 45		0		30,00
	Waste Generator Services		1 fte		600	600	45 65		0		27,00
	Construction Engineer		1 fte		60	60	65		0		39,00
	Sub Contract Driller		1		60	0	65		0		3,90
	Mobilization, Demobilization	<del>                                     </del>	1 is	20000			- 63		0		
	Rig Direct Time		1 ls	900000			<b></b>		20000		20,00
	Geologist Support		1 fte	90000					900000		900,00
	Construction Engineer		1 fte		900 450	900	65		0		58,5
	Safety, Rad Con, IH	<del> </del>	1 fte		300	450	65		0		29,2
	Project Management		1 fte		250	300 250	55		0		16,50
2.3.5	Sub Total Well Abandonement	+	1 110		230	250	75	18,750	0		18,79
2.3.6	Disolve Phase Treatment Units D & D	-	<del> </del>								1,160,40
2.5.0	Characterization	<del></del>	<del></del>								
	Project Preparation		1 ls	73771					73771		73,7
			1 ls	2403					2403		2,40
	Preparation for Decontamination and Dismantlement		1 ls	1601					1601		1,60
	Facility Project Operations		1 Is	37682			1		37682		37,6
	Facility Decontamination and Dismantlement		1 is	119179					119179		119,1
	Disposal and Transportation of Waste		1 is	8295					8295		8,29
	Project Management and Support		1 ls	43374					43374		43,37
	Post-Decontamination and Dismantlement		1 ls	1220					1220		1,22
2.3.6	Sub Total Disolve Phase Treatment Units D & D										287,52
											-
		<del></del>									
		+									
		<del> </del>									
		- <del> </del>									
		+									
		+									
		+									
		+									
		+					-				
		+									

DETAILED COST ESTIMATE (CONT.SHEET) Bechtel BWXT Idaho, LLC

Rev 10-96 Page 12 of 19

Project WAG 1/OU 1-07 B/ROD Amendment Alternatives

> ALTERNATIVE 2 ISB, NPTF, and MNA

ACCT.	DESCRIPTION	E,V,	MAT'L	MAT'L UT.	UNIT LAB.	TOTAL	LABOR	LABOR	MAT'L	OTHER	TOTAL
NO.		P,H	UNIT	COST	HRS	LAB. HRS.	RATE	COST	COST	COST	COST
1.1	Alternative 2 FFA/CO Management and Oversight						,				
1,1,1	Pre-ROD Review and Scoping		1 ls	443000					443000		443,000
1.1.2	Project Management										
	General Project Management-(FY 1995-1999) 5 Year Duration		5 vr	578400					2892000	l	2,892,000
	General Project Management-(2000-2003) 4 Year Duration		†				t				
	WAG 1 PBS Manager		0.2 fte		2,080	416	75	31,200	0		31,200
	WAG 1 Project Engineer		0.1 fte		2,080	208	65	13,520	0		13,520
	Project Manager		1.0 fte		2,080	2,080	75	158,000	0		156,000
	RD/RA Manager		1.0 fte		2,080	2,080	75	158,000	0		156,000
	Project Engineer		0.10 fte		2,080	208	65	13,520	0		13,520
	Project Controls Engineer		1.0 fte		2,060	2,080	55	114,400	0		114,400
	Admin Support		0.2 fte		2,080	416	45	18,720	. 0		18,720
·	Total Cost (Per Year)										503,360
	Total Cost (Per Year Rounded)		T.					0	0_		503,400
	General Project Management-(FY 2000-2003) 4 Year Duration		4 yr	503,400		0		0	2,013,600		2,013,600
	General Project Management-(2004) 1 Year Duration							0	0		0
	WAG 1 PBS Menager		0.2 fte		2,080	416	75	31,200	0		31,200
	WAG 1 Project Engineer		0.1 fte		2,080	208	65	13,520	0	I	13,520
	Project Manager		0.5 fte		2,080	1,040	75	78,000	0		78,000
	RD/RA Menager		0.5 Re		2,080	1,040	75	78,000	0		78,000
	Project Engineer		fte		2,060		65	0	0		0
	Project Controls Engineer		0.5 fte		2,060	1,040	55	57,200	0	1	57,200
	Admin Support		0.2 fte		2,080	416	45	18,720	0	l	18,720
	Total Cost (Per Year)		l								276,640
	Total Cost (Per Year Rounded)		<u> </u>			0		0	0		276,600
	General Project Management-(FY 2004) 1 Year Duration		1 yr	276,600		0	1	0	276,600		276,600
	General Project Management-(2005) 1 Year Duration		1	J.,			1	0	0		0
	WAG 1 PBS Manager		0.2 fte		2,080	416	75	31,200			31,200
	WAG 1 Project Engineer		0.2 fte		2,080	416		27,040			27,040
	Project Manager		0.4 fte		2,080	632	75	62,400			62,400
	RD/RA Manager		fte	ļ	2,080	0	75		0	<u> </u>	0
	Project Engineer		fte		2,080	0		0	<u> </u>	ļ	0
	Project Controls Engineer		0.2 Ne		2,080	416	_	22,880		ļ	22,880
	Admin Support		0.2 No		2,080	416	45	18,720	<u> </u>		18,720
	Total Cost (Per Year)		<b></b>	ļ			ļ		<b></b>	ļ	162,240
	Total Cost (Per Year Rounded)		<b>_</b>	<b> </b>				0	0	ļ	162,200
	General Project Management-(FY 2005) 1 Year Duration		1 yr	162,200		0	<b>4</b>	O	162,200	<b></b>	162,200
			ļ	ļ		<b> </b>	<b> </b>		ļ	<b> </b>	
			ļ	ļ	ļ		<b>↓</b>		ļ	<b> </b>	
		L	<u> </u>		l	L	<u> </u>	L	<u> </u>	l	

Bechtel BWXT Idaho, LLC Rev 10-98

Page 13 of 19

Project WAG 1/OU 1-07 B/ROD Amendment Alternatives

> ALTERNATIVE 2 ISB, NPTF, and MNA

6223-AD

ACCT. NO.	DESCRIPTION	E,V, P,H	MAT'L UNIT	MAT'L UT. COST	UNIT LAB. HRS	TOTAL LAB. HRS.	LABOR RATE	LABOR	MAT'L	OTHER	TOTAL
	General Project Management-(2006-09, 11-14, 16-19, 21-24, 26-29) 20 Year Durat	1,11	UNII	0031	nns	LAB. FIRS.	HAIE	COST	COST	COST	COST
									0	<b></b>	0
	WAG 1 PBS Manager		0.15 fte		2,080	312	75	23,400	0		23,400
	WAG 1 Project Engineer		0.15 fte		2,080	312	65	20,280	0		20,280
	Project Manager RD/RA Manager		0.2 fte		2,080	416	75	31,200	0		31,200
	Project Engineer		tte		2,080	0	75	0	0		0
	Project Controls Engineer		fle		2,080	0		0	0	ļ	0
	Admin Support		0.15 fte		2,080	312	55	17,160	0		17,160
	Total Cost (Per Year)		0.15 fte		2,080	312	45	14,040	0		14,040
	Total Cost (Per Year Rounded)									ļ <u></u>	106,080
	General Project Management-(2006-09, 11-14, 16-19, 21-24, 26-29) 20 Year Duration		20 vr	400.400		0		0	0		106,100
	General Project Management (2010, 15, 20, 25, 30) 5 Year Duration	on	20 yr	106,100		0		0	2,122,000	<u> </u>	2,122,000
	WAG 1 PBS Manager						-	0	0	ļļ.	0
	WAG 1 Project Engineer		0.2 fte		2,080	416	75	31,200	0	<b> </b>	31,200
	Project Manager		0.2 fte		2,080	312	65	20,280	0		20,280
	RD/RA Manager		U.2 Ne	*	2,080	416	75	31,200	0		31,200
	Project Engineer		tte		2,080	0	75		0	ļļ.	0
	Project Controls Engineer		0.20 fte				65	0	0	ļ <u>-</u>	0
	Admin Support		0.20 fte		2,080	416 416	55 45	22,880	00		22,880
	Total Cost (Per Year)		0.20 NB		2,080	416	45	18,720	0		18,720
	Total Cost (Per Year Rounded)										124,280
	General Project Management-(2010, 15, 20, 25, 30) 5 Year Duration		5 vr	124,300		0			0		124,300
	Detailed Work Package Update-(FY 2000-2003) 4 Year Duration		Э уг	124,300				0	621,500	<u> </u>	621,500
	Cost Estimator		0.08 fte		2080						
	Admin Support		0.02 fte		2080	160	65	10,400			10,400
	Project Controls Support		0.02 No		2080	160	45 50	1,800			1,800
	Computer Upgrade		2.0 ea	7000	2000	100	30	8,000	14,000	<u> </u> -	8,000
	Travel for Agency Meetings		4.0 ea	2000					8,000	<del></del>	14,000
	Total Cost (Per Year)		7.0 02			****			8,000		8,000
	Total Cost (Per Year Rounded)								0	<b></b>	42,200
	Detailed Work Package Update-(FY 2000-2003) 4 Year Duration		4 vr	42,200		0	-		168,800		42,200
	Detailed Work Package Update-(FY 2004-2030) 27 Year Duration		- 7,1	12,200			-		100,000		168,800
	Cost Estimator		0.02 fte		2080	40		2,600			
	Admin Support		0.005 fte		2080	10	46	2,600			2,600
	Project Controls Support		0.02 fte		2080	40	50	2,000			450 2.000
	Computer Upgrade		1.0 ea	7000				2,000	7,000		7,000
	Travel for Agency Meetings		1.0 ea	2000					2,000		2,000
	Total Cost (Per Year)	$\neg \neg$							2,000		
	Total Cost (Per Year Rounded)					0			0		14,050
	Detailed Work Package Update-(FY 2004-2030) 27 Year Duration		27 yr	14,100					380,700		14,100 380,700
				,.30					300,700		360,700
						·					
							-				
1.1.2	Project Management-FY 1995-2004) Capital Costs	<del></del> i									8,637,400

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Rev 10-96

Page 14 of 19

Project WAG 1/OU 1-07 B/ROD Amendment Alternatives

ALTERNATIVE 2
ISB, NPTF, and MNA

pe of Est. Planning File No. 6223-A

le No. 6223-AD Date 09/06/00

ACCT. NO.	DESCRIPTION	E,V, P.H	MAT'L UNIT	MAT'L UT. COST	UNIT LAB. HRS	TOTAL LAB, HRS.	LABOR RATE	LABOR COST	MAT'L	OTHER COST	TOTAL COST
1.2	Treatability Studies	F,n	ONIT	C031	rino	LAB, ring.	INAIL	COST	- 0031	- 003,	0031
1.2.1	Treatability Studies ISB, Pump and Treat and MNA		<del> </del>								
	Treatability Studies- Pump and Treat(Thru FY 99)		1 is	7936000				,	7936000		7,936,000
	ISB Technical Integration Activities (FY 00)		1 ls	283000			1		283000		283,000
	ISB Preparation of Field Evaluation Final report (FY 00)		1 ls	46000			1		46000		46,000
	ISB Modeling (FY 00)		1 is	57000			1		57000		57,000
	ISB Pre-Design Optimization (FY 00)		1 is	350000			1		350000		350,000
	ISB Alternate Electron Donor Evaluation (FY 00)		1 is	176000					176000		176,000
	ISB Design Optimization Workplan (FY 00)		1 ls	33000					33000		33,000
	ISB Performance Monitoring Stategy Development (FY 01)		1 is	36000					36000		36,000
	MNA Technical Integration Activities (FY 00)		1 ts	81000					81000		81,000
	MNA Vertical Profile Sampling (FY 00)		1 is	266000					266000		266,000
	MNA Vertical Profile Sampling (FY 01)		1 ls	150000					150000		150,000
	MNA Data Analysis and Site Conceptual Model Update (FY 00)		1 ls	78000					78000		78,000
	MNA Monitoring Wells (FY 00)		1 ls	738000		1	<u> </u>		738000		738,000
	MNA Monitoring Wells (FY 01)		1 ls	79000		<u> </u>	ļ		79000		79,000
	MNA Modeling (FY 00)		1 ls	85000		<b></b>			85000	-	85,000
	MNA Performance Monitoring Strategy Development (FY 01)		1 ls	36000					36000		36,000
	Field Demonstration Report # 1 (FY 99)		1 ls	66000					66000		66,000
	Field Demonstration Report # 1 (FY 00)		1 is	107000					107000		107,000
	Proposed Plan and ROD Amendment (FY 00)		1 ls	104000		<del> </del>	<del>-</del>		104000		104,000
	Proposed Plan and ROD Amendment (FY 01)		1 ls	28000					28000		28,000
	Total Treatability Studies (FY99)		<del> </del> -	<u> </u>		<del> </del>			<del> </del>	ļ	8,002,000
	Total Treatability Studies (FY00)	-	<del> </del>	<u> </u>					<b>+</b>		2,404,000
	Total Treatability Studies (FY01)	_	1	10705000		<del> </del>			40705000		329,000
1.2.1	Sub Total Treatability Studies		1 is	10735000		<del> </del>			10735000		10,735,000
1.3	Remedial Design		<del>                                     </del>	l		ļ			ļ		
1.3.1	Phase C Remedial Action Workplan and NPTF Design		1 ls	469000		ļ			469000	ļ	469,000
1.3.2	ISB Design		1 ts						0		0
	30% ISB Design		1 ls	5076.6431					5076.6431		5,077
	30% ISB Design Comment Resolution and Incorporation		1 is	546.75666		<del> </del>			546.75666		547
	90% ISB Design		1 is	4791.5171	<del>-</del> -	<del> </del>			4791.5171		4,792
1.3.2	Sub Total ISB Design		<del> </del>	ļ			+		<del></del>	<u> </u>	10,415
1.3.3	Phase C Remedial Action Workplan and Supporting Documents		<del> </del>	105434		<b>-</b>	-		105101		105.404
	Prepare DPTU RD/RA Workplan		1 ls	16357		<del> </del>	+		105434	<b> </b>	105,434
	DPTU RD/RA WP Final Comment Resolution and Incorporation		1 ls	10357		-	+		16357		16,357 121,791
1.3.3	Sub Total Phase C Remedial Action WP and Supporting Doc's			<del> </del>			<del> </del>		<del> </del>	<b>!</b>	121,791
1.4	Remedial Action Construction		+ .	1000000			<del> </del>		100000	<b> </b>	4 000
1.4.1	NPTF Extraction Wells		1 ls	1300000			<del> </del>		1300000	<b> </b>	1,300,000
1.4.2	NPTF Construction FY 00 and 01		1 ls	1913000		<del> </del>	<del> </del>		1913000	ļ	1,913,000
1.4.3	ISB Construction		<del>                                     </del>	1704 0455		ļ			1701 0100	<b>}</b>	4 705
	ISB RFP, Bid and Award		1 ls	1794.6489		<u> </u>	+		1794.6489	<del> </del> -	1,795
	Construct ISB		1 ls	92000		<u> </u>			92000	<del> </del>	92,000
	Perform Pre-Final Inspection and Prepare Report		1 ls	363.20167	L	l			363.20167	L	363

	Prepare ISB Draft Final Inspection Report	 1 is	1127.2794			1127.2794	I	1,127
1.4.3	Sub Total ISB Construction				 			95,285
1.4.4	Remedy Performance Monitoring Wells						l	
							·	

Date 6223-AD File No. Planning Type of Est. Bechief BWXT Idaho, LLC
Rw 10-86
Page 15 of 19
Project WAG VOU 1-07 BROD Amendment Manualines ALTERNATIVE 2 ISB, NPTF, and MNA

00/90/60

ACCT.	DESCRIPTION	P.Y.	MATL	MAT'L UT.	UNIT LAB.	TOTAL LAB. HRS.	LABOR	LABOR	MAT'L COST	OTHER COST	TOTAL
2.1	Alternative 2 Remedial Action Operations										
2.1.1	GWTF Operations Transition to 1-07B		1 ls	2466000					2466000		2,466,000
2.1.1	Sludge treatment and Disposal		1 ls	10000					10000		10,000
2.1.1	Phase B Hot Spot Containment Operations										
	Facility Operations-(FY 1995-1999) 5 Year Duration		5 yr	452400					2262000		2,262,000
	Facility Operations-(FY 2000) 1 Year Duration		1 X	324000					324000		324,000
	Facility Operations-(FY 2001-2003) 3 Year Duration										
	Hot Spot Containment Facility Operations (Labor)										
	Project Engineer		0.10 fte		2,080	208	92	13,520			13,520
	Construction Engineer		0.25 the		2,060	829	92	33,600			33,800
	Operations Engineer		0.25 the		2,080	520		33,800			33,800
	Mechanical Engineer		0.10 fte		2,080	208	75	15,600			15,600
	Rad Con Tech		0.05 fte		2,080	104		4,680			4,680
	Industrial Hygiene		0.10 fle		2,080	508	æ	11,440			11,440
	Admin Support		0.10 fle		2,080	208		096'8			9,360
	Electricien		0.05 fte		2,080	20	8	5,720			5,720
	Pipelitier		0.05 fte		2,080	101	8	6,240			6,240
	Operator		0.06 fte		2,080	521	55	6,864			6,864
	Laborer		0.10 fte		2,080	802	\$	9,360			9,360
	Sampler		0.05 fte		2,080	201	28	6,760			6,760
	ECt. Chemist (Air Analysis)		0.05 fte		2,080	2		6,760			6,760
	SMO Chemiet		0.10 fle		2,080	508	8	13,520			13,520
	SMO Support		0.10 fle		2,080	508	8	13,520			13,520
	Sub Total- Labor Facility Operations										190,944
	Hot Spot Containment Waste Management (Labor)										
	Waste Specialist		0.15 fte		2,080	312	\$	14,040			14,040
	Admin Support		0.05 fte		2,080	2		4,680			4,680
	Red Con Tech		0.10 fte		2,080	208	Ą.	9,360			9,360
	Laborer		0.10 fte		2,080	208		096'8			9,360
	Operator		0.05 the		2,080	20		5,720			5,720
	Driver		0.05 the		2,080	201	33	5,720			5,720
	Safety Engineer		0.06 fte		2,080	166		9,152			9,152
	Sub Total- Labor Waste Management										58,032
	Sub Total- Subcontract (Lab analysis)		00; se 00;	150						15000	15,000
	Hot Spot Containment Facility Operations (Material)										
	Water Blind Samples		24 ea	20					3600		3,600
	Air Blind Samples		24 00	200					4800		4,800
	Milec Supplies		12 oc	900					12000		12,000
	Milec Air Stripper Maint & Repeir		<u>-</u>	986					900		10,000
	Av Freight		5 00	8					300		300
	Printing		1500 ea	0.1					150		150
	Vehicle		360 day	15					2400		5,400
	Hesting, Air Stripper		36900 kw	0.035					1291.5		1,292
	Milec Power, Lighting		12000 kw	0.035					420		450
	Air Stripper, Fan & TAN 29		97000 lot	0.035					3395		3,395
	Sub Total Hot Spot Containment Facility Operations (Material)										41,357
	Hot Spot Containment Waste Management (Material)										
	Drume		12 ea	65.000					780		780

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										•
Boxes	1 1	12 ea	150.000	1	1	1	1	1800	ı —	1,800
Sub Total Hot Spot Containment Waste Management (Material)	T					1			<del> </del>	2,580
Total Cost (Per Year)	1-1					<del>†                                      </del>				
Total Cost (Per Year Rounded)	<del>                                     </del>				·	<del> </del>	<del>                                     </del>		<del></del>	307,913
Facility Operations & Waste Mgmt(FY 2001-2003) 3 Year Duration	<del></del>	3 10	307,900		· · · · · · · · ·	<b>-</b>	ļ <u>.</u>	0		307,900
The state of the s		3 yı	307,900					923,700		923,700
	+					<b></b>				
						I				

Bechtel BWXT (daho, LLC Rw 10-86 Page 16 of 19 Project WMG 1/OU 1-07 BROO Amendment Allem

Type of Est.

00/90/60

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6223-AD

File No.

ACCT	DESCRIPTION	EV.	MATIL	MAT'L UT.	UNIT LAB	TOTAL	LABOR	LABOR	MATL	OTHER	TOTAL
Ŋ.		P,H	TINO	COST	HRS	LAB. HRS.	RATE	COST	COST	COST	COST
2.1	Alternative 2 Remedial Action Operations										
212	Phase C Operations										
	NPTF/NGWTF/DPTU Operations-(FY 2004-2026) 23 Year Duration										
	NPTFAGWTF/DPTU Operations (Labor)										
	Project Engineer		0.10 fte		2,080	508	æ	13,520			13,520
	Construction Engineer		0.25 fte		2,080	520		33,600			33,800
	Operations Engineer		0.25 fla		2,080	820	88	33,600			33,800
	Mechanical Engineer		0.10 fte		2,080	508		15,600			15,600
	Rad Con Tech		0.05 fte		2,080	20		4,680			4,680
	Industrial Hygiene		0.10 fte		2,080	508		11,440			11,440
	Admin Support		0.10 fte		2,080	908		096'6			96,8
	Eachtrian		0.05 fte		2,080	\$		5,720			6,720
	Pipalitier		0.05 fte		2,080	2		6,240			6,240
	Operator		0.06 fte		2,080	25	8	6,864			6,864
	Laborer		0.10 fte		2,080	902	L	9,360			9,360
	Seruber		0.05 fte		2,080	2		6,780			6,760
	ECt. Chemiet (Air Analysis)		0.05 the		2,080	Ş		6,780			6,760
	SMO Chemiet		0.10 fte		2,080	506		13,520			13,520
	SMO Support		0.10 fte		2,080	802		13,520			13,520
	Sub Total- Labor NPTFANGWTF/DPTU Operations										190,944
	NPTEAGWTE/DPTi Wasta Management (Labor)										
	Waste Specialist		0.15 fte		2.080	312	\$	14.040			14.040
	Admin Second		an 5000		2,080	20		4.680			4.680
	Rad Con Tech		0.10 fte		2.080	902		9.360			9.360
	I about		o to		2,080	8		098.6			9.360
	Operator		90.00		2,080	2	L	5.720			5.720
	Driver		0.05 %		2,080	2	L	5,720			5,720
	Safety Engineer		0.08 fte		2,080	991	S	9,152			9,152
	Sub Total- Labor NPTFAKGWTF/DPTU Waste Management										58,032
	Sub Total- Subcontract (Lab analysis)		100 88	051						15000	15,000
	NPTFANGWTF/DPTU Operations (Material)										
	Water Bind Samples		24 00	150					3600		3,600
	Air Blind Samples		24 00	200					4800		4,800
	Misc Supplies	_	12 ea	100 00 1					12000		12,000
	Misc Air Stripper Maint & Repair		101	10000					10000		10,000
	Air Freight		5 88	8					300		30
	Printing		1500 ee	0.1					150		051
	Vehicle		360 day	15					5400		5,400
	Heating, Air Stripper		36900 kw	0.035					1291.5		1,292
	Misc Power, Lighting		12000 kw	0.035					420		420
	Air Stripper, Fan & TAN 29		97000 lot	0.035					3395		3,385
	Sub Total NPTFANGWTF/DPTU Operations (Material)										41,357
	NPTF-NGWTF/DPTU Waste Management (Material)										
	Drums		12 ea	65.000					780		780
	Bornes		12 04	150.000					1800		1,800
	Sub Total NPTF/NGWTF/DPTU Waste Management (Material)										2,580
	Total Cost (Per Year)										507,913
	Total Cost (Per Year Rounded)					•		0	٥		307,900
	NPTFANGWTF/DPTU Operations & Waste Mgmt(FY 2004-2026) 23 Year Duration		23 yr	307,900					7,081,700		7,061,700

Bechtel BWXT Idaho, LLC Rev 10-96

Project WAG 1/OU 1-07 B/ROD Amendment Alternatives

ALTERNATIVE 2 ISB, NPTF, and MNA

Type of Est. Planning

File No.

6223-AD

ACCT.	DESCRIPTION	E,V,	MAT'L	MAT'L UT.	UNIT LAB.	TOTAL	LABOR	LABOR	MAT'L	OTHER	TOTAL
NO.		P,H	UNIT	COST	HRS	LAB. HRS.	RATE	COST	COST	COST	COST
2.1.3	Phase C Project Management										3,563,000
2.2	Surveillance and Monitoring										0,000,000
2.2.1	Groundwater Monitoring			1		<del></del>	+		1		
	Groundwater Monitoring-(FY 1995-1999) 5 Year Duration	1	5 yr	199200			<del>  </del>		996000		996.0
	Groundwater Monitoring-(FY 2000) 1 Year Duration		1 yr	327000					327000		327.
	Groundwater Monitoring-(FY 2001-2030) 30 Year Duration						<del> </del>		327000		321,
	Routine Sampling Round (FY 2001)		1 yr	207890	· · · · · · · · · · · · · · · · · · ·				207890		207.
	Analysis and Validation of Prior Year Samples (2002)		1 yr	166490					166490		166
	Statistical Sampling Round (2003)		1 vr	102700			++		102700		102
	Analysis and Validation of Prior Year Samples (2004)		1 vr	116690		<del> </del>	+		116690		116
	Routine Sampling Round (FY 2005)	1	1 yr	161300		<del> </del>	<del>                                      </del>		161300		161
	Analysis and Validation of Prior Year Samples (2006)		1 yr	193190			++		193190	-	193
	Statistical Sampling Round (2007)		1 yr	102700			<del></del>		102700		102
	Analysis and Validation of Prior Year Samples (2008)		1 vr	116690			+		116690		116
	Routine Sampling Round (FY 2009)		1 yr	111300					111300	<del></del>	111
	Analysis and Validation of Prior Year Samples (2010)		1 yr	191490	· · · · · · · · · · · · · · · · · · ·		1		191490		191
	Statistical Sampling Round (2011)		1 yr	129400			1		129400		129
	Analysis and Validation of Prior Year Samples (2012)		1 yr	116690			1		116690		116
	Routine Sampling Round (FY 2013)		1 yr	111300	***************************************				111300		111
	Analysis and Validation of Prior Year Samples (2014)		1 yr	166490	******		<del>  </del>		166490		166
	Statistical Sampling Round (2015)		1 yr	127700			<del>                                   </del>		127700		127
	Analysis and Validation of Prior Year Samples (2016)		1 yr	143390		1	1		143390		143
	Routine Sampling Round (FY 2017)		1 yr	111300		i	1 1		111300		111
	Analysis and Validation of Prior Year Samples (2018)		1 yr	166490					166490		166
	Statistical Sampling Round (2019)		1 yr	102700			† †-		102700		102
	Analysis and Validation of Prior Year Samples (2020)		1 yr	141690					141690		14
	Routine Sampling Round (FY 2021)		1 yr	138000			1		138000		136
	Analysis and Validation of Prior Year Samples (2022)		1 yr	166490					166490		166
	Statistical Sampling Round (2023)		1 yr	102700				<del></del>	102700		102
	Analysis and Validation of Prior Year Samples (2024)		1 yr	116690					116690		116
	Routine Sampling Round (FY 2025)		1 yr	136300					136300		136
	Analysis and Validation of Prior Year Samples (2026)		1 yr	193190					193190		193
	Statistical Sampling Round (2027)		1 yr	102700					102700		102
	Analysis and Validation of Prior Year Samples (2028)		1 yr	116690					116690		116
	Routine Sampling Round (FY 2029)		1 yr	111300			7	***************************************	111300		111
	Analysis and Validation of Prior Year Samples (2030)		1 yr	191490			1 1		191490		191
	Sub Total-Groundwater Monitoring-(FY 2001-2030) 30 Year Duration						T		1		4,163
.2.2	Remedy Performance Monitoring						1 1	#VALUE!	#VALUE!		#VALUE!
					*****	***************************************		#VALUE!	#VALUE!		#VALUE!

Bechtel BWXT Idaho, LLC

DETAILED COST ESTIMATE (CONT.SHEET)

Rev 10-96

Page 18 of 19

Project WAG 1/OU 1-07 B/ROD Amendment Alternatives

ALTERNATIVE 2 ISB, NPTF, and MNA

6223-AD Date 09/06/00

ACCT.	DESCRIPTION	E,V,	MATL	MAT'L UT.	UNIT LAB.	TOTAL	LABOR	LABOR	MAT'L	OTHER	TOTAL
NO.		P,H	UNIT	COST	HRS	LAB, HRS.	RATE	COST	COST	COST	COST
2.3	Decontamination and Dismantlement										
2.3.1	GWTF D & D		1				$\top$				
	Characterization		1 ls	417818			1 1		417818		417,818
	Project Preparation		1 ls	14700		1			14700		14,700
	Preparation for Decontamination and Dismantlement		1 la	10812					10812		10,812
	Facility Project Operations		1 ls	244786					244786		244,786
	Facility Decontamination and Dismantlement		1 18	306999					306999		306,999
	Disposal and Transportation of Waste		1 ls	16368					16368		16,368
	Project Management and Support		1 ls	271974					271974		271,974
	Post-Decontamination and Dismantlement		1 16	7630					7630		7,630
2.3.1	Sub Total GWTF D & D			11							1,291,087
2.3.2	ASTU D & D										
	Characterization		1 is	231551					231551		231,551
	Project Preparation		1 is	14700					14700		14,700
	Preparation for Decontamination and Dismantlement		1 10	10812					10812	<b></b>	10,812
	Facility Project Operations		1 le	244786		ļ			244786	ļ	244,786
	Facility Decontamination and Dismantlement		1 ls	306999		ļ		·····	306999	<b> </b>	306,999
	Disposal and Transportation of Waste		1 18	16368		<u> </u>	+-+		16368		16,368
	Project Management and Support		1 10	271974 7630			-		271974 7630		271,974 7,630
	Post-Decontamination and Dismantlement		1 18	/630		<del> </del>			/630	<del>                                     </del>	
2.3.2	Sub Total ASTU D & D			<b> </b>		<u> </u>				l	1,104,820
2.3.3	ISB D & D		ļ			<del></del>	4				
	Characterization		1 ls	66394			+		66394		66,39
	Project Preparation		1 ls	2162 1441					2162 1441	<del>                                     </del>	2,162
	Preparation for Decontamination and Dismantlement		1 is	33914		<del> </del>		<del></del>	33914	<del>                                     </del>	33.914
	Facility Project Operations Facility Decontamination and Dismantlement		1 18	107261		<del> </del>	+		107261	<del>                                     </del>	107.26
	Disposal and Transportation of Waste		1 18	7465	<del></del>		+		7465	1	7,465
	Project Management and Support		1 18	39037			1		39037	<b></b>	39,037
	Post-Decontamination and Dismantlement		1 18	1098		† · · · · · · · · · · · · · · · · · · ·	1		1098	1	1,09
2.3.3	Sub Total ISB D & D		T								258,772
2.3.4	NPTF D & D		1	<b>†</b>		<del></del>					
2.3.4	Characterization		1 ls	138321		<del> </del>	1		138321	tt	138,321
	Project Preparation		1 ls	4505					4505		4,505
	Preparation for Decontamination and Dismantlement	<del>-  </del>	1 ls	3002	:			<del></del>	3002		3,002
	Facility Project Operations		1 ls	70653		T			70653		70,653
	Facility Decontamination and Dismantlement		1 ls	133637					133637		133,637
	Disposal and Transportation of Waste		1 18	8536					8536		8,530
	Project Management and Support		1 ls	81327					81327		81,32
	Post-Decontamination and Dismantlement		1 is	2288					2288	L	2,28
2.3.4	Sub Total NPTF D & D		<u> </u>	<u> </u>		<u> </u>					442,269
			1								

Bechtel BWXT Idaho, LLC

DETAILED COST ESTIMATE (CONT.SHEET)

Rev 10-96

Page 19 of 19 Project

WAG 1/OU 1-07 B/ROD Amendment Alternatives

ALTERNATIVE 2 ISB, NPTF, and MNA

6223-AD

ACCT.	DESCRIPTION	E,V,	MAT'L	MAT'L UT.	UNIT LAB.	TOTAL	LABOR	LABOR	MAT'L	OTHER	TOT41
NO.		P,H	UNIT	COST	HRS	LAB. HRS.	RATE	COST			TOTAL
2.3.5	Well Abandonement					CAD. TITIO.	MAIL	COS1	COST	COST	COST
	Well Abandonement Planning		1 fte	1000	140	140	75	10,500	1000		
	Safety, Job Control, ISMS		1 fte		80	80					11,5
	Well Head Preparation and Waste Disposal		T	<del>                                     </del>		80	/5	6,000	0	<u>_</u>	6,0
	Equipment Operator		1 fte		600	600					
	Laborer	······································	1 fte	<del> </del>		600	50	30,000	0		30,0
	Waste Generator Services		1 fte	<del>                                     </del>	600	600	45	27,000	0		27,0
	Construction Engineer		1 fte	<del> </del>	600	600	65	39,000	0		39,0
	Sub Contract Driller	<del></del>	1 110	<del> </del>	60	60	65	3,900	0		3,9
	Mobilization, Demobilization		1 is	20000	60		65	0	0		
	Rig Direct Time			20000					20000		20,0
	Geologist Support		1 ls	900000					900000		900,0
	Construction Engineer		1 fte	<u> </u>	900	900	65	58,500	. 0		58,5
	Safety, Rad Con, IH		1 fte	ļ	450	450	65	29,250	0		29,2
			1 fte		300	300	55	16,500	0		16,5
	Project Management		1 fte		250	250	75	18,750	0		18,7
2.3.5	Sub Total Well Abandonement										1,160,4
											.,,,,,,,
							+				